

A GENERIC REVISION OF THE ACHILIDAE

(HOMOPTERA: FULGOROIDEA)

WITH DESCRIPTIONS OF NEW SPECIES

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A GENERIC REVISION OF THE ACHILIDAE (HOMOPTERA: FULGOROIDEA) WITH DESCRIPTIONS OF NEW SPECIES

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SYNOPSIS

This paper consists of a revision of the world genera of the family Achilidae (Homoptera: Fulgoroidea). After a brief outline of the history of the systematics of the family, the morphological characters on which the present classification is based are surveyed and compared with those found in other fulgoroid families. A key to the seven tribes of Achilidae is then given, followed by descriptions of the tribes and keys to their genera. The genera are then described and discussed. Altogether 99 genera are dealt with, of which 30 are described as new, while 46 new species are described and a number of old ones redescribed. A considerable amount of synonymy is recorded and many new nomenclatorial combinations proposed.

THE family Achilidae was established by Stål (1866:130) for the reception of *Achilus* Kirby and twelve other genera. With the transference of genera from other families, and the contributions of later workers, notably Melichar, Kirkaldy, Distant, Matsumura, and Muir in the Old World and Uhler, Ball, and Metcalf in the New, the number of genera by 1938 had increased to something over sixty. In the present revision it has been found necessary to describe thirty new genera and to validate the name *Lanuvia* proposed by Stål.

In 1923 Muir (Muir, 1923) gave the first satisfactory definition of the family, which he reinforced in 1930 (Muir, 1930) after considering the dispositions of Haupt (1929), who had placed the group as a subfamily of the Cixiidae, though on the basis of characters which are not rigorous in their application. In 1938 Metcalf established two subfamilies, Apatesoninae and Achilinae, separated by the prominence of the cephalic carinae and by the carriage of the tegmina.

The present study has been based on the large collection in the British Museum, on material in the Naturhistoriska Riksmuseum, Stockholm, and on the writer's personal collection of West Indian and South American forms; the data from this material have been supplemented by notes prepared by the writer while examining species in the United States National Museum and the Museum of Comparative Zoology. The writer is deeply indebted to the authorities of the British Museum for the privilege of studying their collection, and in particular to Dr. W. E. China, Deputy Keeper of Entomology, for the assistance he has given on matters of detail too numerous to list; no less a debt is acknowledged as due to Dr. René Malaise, of the Naturhistoriska Riksmuseum, for the opportunity of studying Stål's historic types. Thanks are also tendered to Mr. E. C. Zimmerman, Curator of Entomology in the Bishop Museum, Honolulu, for his efforts in tracing certain of Kirkaldy's types, and to Dr. J. C. Bequaert, Curator of Insects in the Museum of Comparative Zoology, for supplying drawings of *Catonoides fusca* Metcalf.

A few genera have at different times been placed in this family but belong

elsewhere; these include *Ambalangoda* Distant (= *Ptoleria* Stål), *Vekunta* Distant, *Kirbyana* Distant, *Melandeva* Distant, *Temesa* Melichar, *Pleroma* Melichar, *Talaloea* Distant, *Issidius* Puton, and *Taractellus* Metcalf.

The following combination of characters is given by Muir (1923, 1930) as distinctive of Achilidae: antennal flagellum not segmented, lateral ocelli outside lateral carinae of frons, lorae not visible in full view. Second post-tarsal segment relatively long. Tegmina with costal area absent, or, if present, devoid of transverse veinlets; clavus closed with united claval veins entering apex; claval veins not granulate; sutural margin extending beyond apex of clavus. Anal area of wings not reticulate. Abdomen in adult devoid of wax pores and of processes at base. Female with ovipositor incomplete. Male with pygofer flattened horizontally, medioventral process generally present and paired; genital styles large, complex.

Muir noted that in two species, the male genitalia of which he examined, the aedeagus consisted of a phallobase produced into processes and a small inner phallus. The loral character does not hold in *Myconus* and its allies, nor the absence of transverse veins in the costal area in *Pseudhelicoptera*. It would appear from the present study that his characters may be supplemented with the following:

First valvulae of ovipositor furnished with a pair of ventral lobes; the dorsal sclerotized limb with four or five teeth, the apical pair longest; third valvulae rounded or truncate distally, apical margin membranous. Bursa copulatrix simple or furnished with sclerites. Egg ellipsoidal, devoid of ornamentation, with a cluster of digitate processes at one pole.

As appears to be usual in fulgoroid families, members of the Achilidae show great differences between the extremes of bodily size. The largest species of the family, *Sevia moerens* Stål and *S. intermaculata* Stål, each 14 mm. long from head to apex of folded tegmina, are three and a half times as long as the smallest, *Haitiana nigrita* Doz. (4 mm. between the same points). The family falls naturally into seven groups, which are recognized below as tribes. All are relatively compact; the largest is that typified by *Plectoderes* and its members include the most primitive of the family.

The vertex is usually broader than long, with the anterior margin more or less angulate or convex, and the disk slightly depressed, while the median carina is frequently obsolete or incomplete; there are, however, many modifications of and departures from this basic plan. In *Sevia* and its allies and in *Aneipo* the lateral margins are foliate, a condition found also in *Pseudhelicoptera* and *Chroneba*. In several genera of the Plectoderine series the vertex is longer than broad, but very disproportionately so in *Kardopocephalus*, *Callichlamys*, *Chroneba*, *Pseudhelicoptera*, and *Remosachilus* (described below); the median carina is often complete, while in *Chroneba* it is distinctly foliate, and in *Nelidia* nearly so; in some genera, *Francesca*, *Kardopocephalus*, *Moraballia* (described below), and most markedly in *Bathyccephala* (described below), the disk of the vertex is strongly depressed; in two genera, *Bunduica* and *Epiusana* (described below), supernumerary longitudinal carinae are developed. In *Aphyphia* the anterior margin of the vertex is calloused, the callus being broader nearer the sides than in the middle; in *Agandecca* a somewhat similar condition is found, with the broad lateral portions of the callus slightly indented; from these a progressive excavation of the latero-apical areas of the vertex (or latero-

basal of the frons) is traceable. In some genera (*Taloka*, *Gordiacea*) the areas are very prominent; in others (*Caristianus*) they are distinct but very minute; elsewhere (*Kempiana*) they are obsolete or scarcely indicated.

The 'frons' (the deflexed portion of the vertex between the most anterior part of the head and the fronto-clypeal suture) is generally elongate, and together with the clypeus is elongate-ovate in outline. This simple form, exemplified by *Faventilla*, *Elidiptera*, and *Mlanjella* (described below), may be modified: when the frons is viewed at a right angle to the plane of the distal half of the disk, its basal (or upper) margin may appear mitrate, convex, truncate, or angulately excavate, according to the form of the conventional 'vertex', lying between the actual anterior point of the head and its posterior dorsal margin; the lateral margins vary in their degree of curvature and convexity, but are fairly constant within a genus; the degree of curvature is in some measure indicated by the ratio between maximum width, which is almost invariably just below the level of the antennae, and the width at the base. In *Amblycratus*, *Tropiphlepsia*, and *Caffropyrrhyllis* (described below) the lateral margins are sub-parallel, and this condition is closely approached in other genera (*Sevia*, *Plectoderes*, *Aphygia*, *Lanuvia*, *Kawanda*, *Hemiplectoderes* [described below]); where the 'vertex' is narrowed near the anterior margin of the head, the lateral margins of the frons converge between the eyes and may be concave in this region (*Parakosalya*, *Paraclusivius* [described below]); in *Deferunda* the lateral margins of both frons and vertex are foliate and the former converge to meet basally, and form a cornice overhanging the basal part of the frontal disk. Foliation of the margins is general, and in most genera takes the form of lateral extension at the level of the antennae; such extension is well displayed in *Plectoderes*; occasionally the foliate carinae may be extended obliquely anteriorly (*Sevia*, *Ilva*) or completely anteriorly (*Breddiniola*). The disk of the frons is usually slightly convex in its basal portion and more or less flat distally (*Agandecca*, *Pyrrophyllis*); sometimes it is flat throughout (*Paratangia*, *Betatropis*), while in several genera it is concave; in *Sevia*, *Apateson*, and *Ilva* the concavity is striking and involves the clypeus; biconcavity in the form of longitudinal depression on each side of the middle line is widespread (*Kosalya*, *Lanuvia*, *Bathycephala*, and *Moraballia* (described below) may be cited as more extreme examples). In *Aristyllis* the middle portion of the disk in the apical half is markedly and characteristically depressed, in a manner paralleled only by *Sevia* and its allies, while depression of the disk in this area across the whole of its width occurs where the suture is impressed (*Callinesia*, *Parakosalya*, *Plectoderes*). The profile of the frons is to some extent correlated with the form of the vertex: where this is short the convexity may be considerable (*Plectoderes*); where it is long the frons may be straight throughout its length (*Epiptera*, *Callichlamys*, *Chronoba*, *Betatropis*, *Kolopectera*, *Remosachilus* [described below]).

The clypeus is triangular, more or less flat in profile, with the disk flat or slightly convex; the margins are carinate and usually a median carina is present; variation is found in the ratio of length to maximum breadth, in that of length to the length of the frons, in the convexity or concavity of the disk, and in the angle of convergence of the lateral margins. In length relative to frons *Sevia* and *Callichlamys* illustrate the extreme contrasts in such ratios; the tumid disk is found in *Haitiana*, *Gordiacea*,

and *Parakosalya*; the hollowed disk in *Sevia* and *Ilva* and, on each side of the median carina, in *Kosalya* and *Lanuvvia*. In *Sevia* and its allies the median carina is absent, while in *Callichlamys*, *Callinesia*, and *Paratangia* it is obsolete. The clypeus of *Aristyllis* has a characteristic form, being subequilaterally triangular with the lateral margins straight or slightly concave.

The rostrum is five-segmented and usually terminates near the level of the post-coxae; the joints differ between genera in their degree of elongation (length/width) and in their relative lengths: in some genera (*Magadha*, *Hamba*) the subapical segment is markedly shorter than the apical, whereas in others (*Callichlamys*, *Pyrrhillis*) it is longer. The rostrum also varies in its total length and as in some Cixiidae it is sometimes longer in the female than the male. In the shortest form of rostrum the apex scarcely surpasses the pro-trochanters (*Deferunda*) while in the longest it surpasses the post-trochanters (*Epirama*, *Cionoderella* [described below]); the tip of the rostrum is always bluntly conical, never abruptly truncate and flattened as in Derbidae.

The sides of the head show between genera numerous subtle differences in gradations of outline, degree of obliquity, of inflation or depression, and of extension anteriorly or dorsally: many of these differences are impossible to describe succinctly or even to illustrate: the following, however, are appreciable in their more pronounced forms and are of assistance to the taxonomist. In *Myconus* and a few allied genera the lorai plates, which in the Achilidae are usually set at right angles to the disk of the clypeus, are so feebly oblique as to appear almost as a lateral extension of the disk. The genae, or sides of the head below the level of the eyes, are flat or slightly hollowed out. In *Plectoderes* the considerable lateral extension of the lateral margin of the frons, and the overhanging eye, accompanied by depression of the genae, cause the antennae to be sunk in a depression; through a range of genera it is possible to trace every stage of the transition from the flat gena (*Clusivius*, *Akotropis*) to the deeply hollowed form found in *Plectoderes*. In two genera, *Kolopectera* and *Remosachilus*, a horizontal carina extends from the anterior margin of the eye to the lateral margin of the frons. The form of the sides of the head above the eye depends largely on the shape of the lateral carinae of the vertex: this area is extremely narrow in *Haitiana* and *Aristyllis* and reaches its greatest extent in *Chronoba* and *Pseud-helicoptera*.

The antennae are remarkably uniform in the family: the basal joint is generally very short and ring-like, though it is distinct in *Epiptera*, and in *Rhotala* is almost as long as broad. The second joint is short and subcylindrical in *Rhotala*, *Myconus*, and *Elidiptera* and allied genera; in the remainder it is subovate or subglobose with the third joint and arista terminal, usually set in a slight depression. A noteworthy exception is found in *Haitiana*, where the second joint is cylindrical and abnormally elongate and the apex so oblique that the third joint occupies a subdorsal position. This form of antenna is unique in Achilidae, though its shape recalls that of several derbid genera.

The ocelli, always two in number, appear to be universally present; they vary slightly in position and may be widely separated from the eyes (*Betatropis*, *Chronoba*) or contiguous so as to be flattened on the side adjoining the eye (*Deferunda*, *Gordiacea*,

Catonia). Above the ocelli is a pair of what appear to be placoid sensillae: these are not peculiar to Achilidae but are of wide occurrence in the superfamily. The eyes are usually entire, round in side view and subovate, tapering anteriorly in dorsal view. In a few genera they are ovate, being elongated in conformity with elongation of the head (*Remosachilus*, *Callichlamys*). In many genera they are emarginate below. Such emargination may be very slight, and indicated merely by a lack of red pigment in a small area of the eye above the antenna (*Aristyllis*); indentation of the margin (*Chronoba*) marks a further step, while the extreme condition involves distortion of the lower half of the eye; in such examples the deep excavation is accompanied by lateral bulging of the eye above it (*Taloka*).

The pronotum is convex on the anterior margin and concave posteriorly. It is longest in *Myconus* and its allies (*Epiptera*, *Myconellus*), where, moreover, its basal width very markedly exceeds that of the head; it is shortest in *Apateson* and *Plectoderes*, where it appears dorsally as little more than a subvertical lamina between the vertex and mesonotum; in general it is short and a little wider than the head including the eyes. A medial disk is generally present, bounded laterally by carinae, but it is obsolete in *Sevia* and *Apateson* and minute in *Pseudhelicoptera* and *Plectoderes*, while in *Myconus* its boundaries are obscure. The disk may be anteriorly convex (markedly so in *Rhotala*) or truncate (*Caristianus*, *Kosalya*, *Prosagandecca* [described below]); a median carina is usually present, except in *Elidiptera* and its allies. The lateral carinae of the disk diverge posteriorly and exceed the length of the median carina, usually they pass to the hind margin, though not in *Elidiptera* and allied genera and in those *Plectoderine* forms in which they are concave and curve laterad at their basal extremities. A complete series of intergradations exists in the latter group between the extreme forms that these carinae can assume, as found in *Salemina* and *Bathycephala*. The areas lying behind the eyes between the disk and the lateral margin show marked variation between genera. In *Rhotala*, myconine, elidipterine, and achiline genera they are broad and gently inclined laterad, in *Apateson* and its allies and in *Plectoderes* they are reduced to the hind margin of a subvertical plate. The average pronotum in this region comprises a subvertical portion lying immediately below the postero-lateral field of the head behind and beneath the eye, and an exposed dorsal field sloping laterad gently downward to the lateral margin: this dorsal area may be subhorizontal in an axial direction, and bounded sharply, subcarinately, against the hind margin of the eye (*Haitiana*, *Rupex* [described below]); in this condition it may be smooth (*Aristyllis*) or indented with two or three shallow impressions: these in their extreme form are subrectangulate and the ridges which divide them form subparallel carinae passing from the anterior to the posterior margin. This relatively horizontal dorsal field may compactly occupy the whole area between the eye and mesonotum, or it may be more or less reduced in width (*Deferrunda*, *Betatropis*, *Catonia*) until it disappears (*Paragandecca*, *Plectoderes*). Genera in which it is not developed have this area of the pronotum inclined anteroventrad, that is, shelving from the hind margin forward and downward under the eyes. The lateral margins, long in *Myconus* and extremely short in *Plectoderes*, may be smooth, unicarinate, or bicarinate; in *Breddiniola* and *Breddiniolella* a deep circular fovea is developed on the lateral margin, and the carina passes round its rim. Below the

lateral margins the pronotum is bent downward and twisted to face forward, and the shape of the lobes so formed ('lateral ventral lobes of pronotum') recalls that of saddle-flaps. These lobes show little variation, but differ in relative size and more noticeably in the shape of their lower margin. This, when the insect is viewed from the front, may be straight and horizontal (*Achilus*), or rounded (*Caffropyrrhyllis* [described below]), or more or less oblique; the lower outer angle of the lobe may move mesad and become acute, and the ventral margin which lies mesad of it become exceptionally oblique. The posterior border of the pronotum is more or less emarginate, in *Myconus* the degree of concavity is very slight, but in some genera (*Kosalya*, *Kempiana*, *Betatropis*, *Remosachilus*) the excavation may be rectangulate or acute.

The mesonotum is generally slightly broader than long and more or less distinctly tricarinate. It attains its relatively greatest size in *Myconus* and its allies and its least in plectoderine forms such as *Remosachilus*; it is usually about twice as long as the vertex and pronotum combined. The carinae may be obscure (*Elidiptera*); the lateral carinae may be subparallel or diverge basally, but in *Sevia*, *Apateson*, and allied genera they are convex and enclose an ovate disk. In *Caristianus* the hind portion of the disk is slightly depressed, while in *Kempiana* the anterior part of the disk and the lateral areas outside the disk have a markedly different texture from the posterior: the contrasting areas are separated by a feeble transverse ridge. The tegulae are moderately large and bent through almost a right angle; in some genera a carina is developed along the line of flexure. The legs present no abnormal features in this family. In some genera the pro-tibiae are longer than the pro-femora and trochanters, while in others, including most of the plectoderine forms, they are slightly shorter. The post-tibiae are almost invariably armed. In almost all plectoderine genera a single spine is present in the basal half, but in *Kosalya* there are two. The unarmed condition of the post-tibiae is so exceptional that its reported existence requires confirmation. *Rhotala* is exceptional in the family in having seven post-tibial spines. The second joint of the post-tarsus in *Achilus* is relatively long, much longer than broad, while the pre-tarsus has a well-developed areoleum and a pair of large dorsal sclerites.

The tegmina vary in relative size, proportions, outline, texture, and venation. In most genera they are carried 'horizontally', that is, with the sutural margins closely overlying the tergites of the abdomen and the membrane deflexed to overlap its counterpart beyond the end of the body, thus giving the insect a rather flattened appearance. In *Apateson*, *Sevia*, and their allies the tegmina are carried more steeply, though in some species of the subgenus *Ateson* the membrane may overlap distally. In general the tegmina are about three times as long as wide at the widest part; in *Aphyhia longipennis* the ratio is 3.2:1, while in *Haitiana* it is 2.8:1. The costal margin is very slightly convex. The apical margin is rounded or rounded-truncate; in *Apateson* it is incised in M. This condition is found in certain Dictyopharidae (*Raphiophora*), but nowhere else in Achilidae. The sutural margin is obtusely angulate beyond the apex of the clavus. The clavus is distally truncate and the united claval veins (PCu+Ar) enter its apex. The claval suture is sometimes traceable into cell Cu₁b as a fold. The costal vein generally lies along the anterior margin. In some species of *Sevia*, however, and in *Kempiana* a distinct area is developed before the

costa, and in its basal portion may be relatively broad; in *Pseudhelicoptera* a costal area is developed which is traversed by numerous transverse bars. In some genera (*Catonia*) such separation of the costal vein from the margin may be seen in an incipient form near the base. The subcostal, radial, and median veins usually emerge in a common stalk from the small basal cell; M separates near the base while Sc and R fork approximately level with the fork of Cu₁. The relative positions vary in minor degree between genera, species, and even individual specimens in a series; in *Opsipplanon* and *Necho* the position at which Sc separates from R is unusual in that the subcostal vein is united to the radial almost as far as the node. The apical portion of Sc is a region of venal instability: in its simplest form the vein forks distally and one branch passes to the margin at the node (the anterior end of the line of flexure of the membrane) and forms the basal boundary of the stigmal cell; the other branch bounds the stigmal cell on its lower side then forks and sends two branches to the margin, the anterior of which bounds the stigmal cell on its distal side: this arrangement is frequently modified by the number of branches to the margin in the stigmal area or distad of it being increased (five in *Ilva* and *Plectoderes*, six in *Kosalya*); alternatively the distal portion of the vein may retain its original number of branches but become distorted and partly coalesce with R (*Deferunda*, *Koloptera*); in tegmina with this modification a callus may form at the apex of the costal cell adjoining the nodal line (*Deferunda*), or in the stigmal and adjoining cell (*Koloptera*). The radial vein is two- or three-branched distally (R₁+2, R_s or R₁, R₂, R_s) and the first fork occurs level with the node. M forks at the same level and usually gives off three branches to the margin (M₁, M₂, M₃+4). In *Sevia* and *Myconus* and its allies the number of apical branches is considerably more. In *Elidiptera* and some of its allies marked distortion is found in the distal portion of M and a callus is developed in one or more of the subapical areoles, while a small narrowly rectangular cell, probably of mechanical importance, is often developed in Cu near the callus in M. Both specializations have apparently been evolved to meet the stresses created by the folding of the membrane. The cubital vein emerges from the lower distal angle of the basal cell and forks before the level of the apex of the clavus, usually level with or a little distad of the union of the claval veins. Both branches are generally simple to the apex, though in a few genera (*Elidiptera*, *Mabira* [described below], *Myconus*, *Sevia*) they may become divided into several veinlets before reaching the margin. The posterior branch of Cu is usually slightly convex beyond the apex of the clavus and basad of the first transverse vein, but in the genera *Koloptera*, *Deferunda*, *Haitiana*, *Taloka*, and *Gordiacea* it is abruptly and strongly convex. In these genera R, M, and both branches of Cu converge to a small area near the middle of a line between the node and the claval apex; sometimes, as in *Koloptera*, there is a distinct transverse fold where the nodal line adjoins the costal margin. Apart from the node itself and the apex of the open clavus, the nodal line, which separates corium from membrane, is marked only by the R-M and M-Cu cross veins; a complete subapical line of transverse veins passes from the stigma to the sutural margin distad of the apex of the clavus: it is somewhat irregular, but well defined, and its degree of curvature is usually midway between that of the nodal line and that of the apical margin. The clavus is very uniform throughout the group, and the claval veins unite distad

of its middle. Some variation occurs in its length relative to that of the whole tegmen, with the result that in some genera (*Haitiana*) it extends for much more than half the length of the tegmen, while in others (*Parakosalya*) it terminates basad of the middle.

The tegmina are usually of a sober hue with brown, sepia, or deep fuscous predominating; colour is not lacking in the family, however, and *Achilus flammeus* Kirby and *Aneipo diva* Kirk. rank among the gaudiest of homoptera. In almost all genera the corium is opaque and the membrane subopaque: in *Myconus*, *Elidiptera*, and various plectoderine genera (*Catonia*) both exhibit a moderate degree of translucence, while if *Calerda* is rightly placed in this family it offers a unique example of hyaline transparency. The texture of the corium and membrane may be smooth (*Plectoderes*) or granulate (*Rupex*). In *Tropiphlepsia* and *Rupex* (described below), vertical lenticular flanges are developed on the upper surface of the tegmen on M, Cu, and the hind claval veins; striking though this may appear in its maximal development, the initial stages of the development of such flanges may be seen in *Catonia*. In all genera a short stout flange is similarly developed on the lower surface near the basal cell, as in other Fulgoroidea. In some genera prominent granules are present alternated on each side of the veins (*Opsiplanon*); this sometimes occurs in an accentuated form with the development of short peg-like outgrowths from the veins into the membrane.

Wings are universally present and are rather larger than the tegmina. The margin is entire; Sc is usually simple, but six-branched in *Myconus*; R is usually two- or three-branched; M is generally two-branched, Cu₁ three-branched, Cu₂ simple, PCu is simple, and A₁ two-branched. The wings are usually translucent, powdered white, fuscous, or smoky.

The abdomen is relatively short and depressed so as to appear transversely ovate in section. The sclerites are strongly pigmented brown. A pair of rectangular sclerites lies on each side between the tergite and the ventrite of segments 3 to 8. On the tergites of segments 6, 7, and 8 a pale transverse oval scar is visible: this on the inner wall appears as a short peg-like outgrowth. In the female all the tergites are transverse, but in the male those of segments 6 to 8 may be markedly V-shaped cephalad.

The pregenital sternite in the female is usually transverse posteriorly: it may be slightly produced on each side of the middle line, and in *Rhotala* is greatly enlarged while its hind margin is elongately triangular. Some slight variation may occur within the limits of a genus. Slight changes in form and angularity may also occur in the lower part of the hind margin of the lateral margin of the eighth segment (*Ballomarius*).

The anal segment is usually short and rounded in both sexes; it is elongate in the male of *Rhotala*, *Myconus*, and species of *Plectoderes*. In the female it may be extremely short (*Elidiptera* and allied genera), when it consists of a narrow ring distinctly produced at the latero-ventral angles into finger-like setigerous lobes: in such cases the telson is prominently developed. The pygofer is ring-like: it is normally produced into a short process in the middle of the hind ventral margin: the process may be entire and convex (*Spino*, described below), triangular (*Hemiptectoderes*, described below), elongate (*Elidiptera*), bifid (*Plectoderes*, *Catonia sobrina* Fowler), or

in the form of two separate sclerites free from the margin of the pygofer (*Rhotala*). The external male genitalia, while differing markedly in trivial ornamentation, are uniform in pattern: the phallobase is a broad submembranous tube with certain areas sclerotized; the phallus is reduced to a sclerotized ring around the external opening of the genital duct, with a pair of long subequal strip-like appendages which are usually minutely shagreened at the apex; in *Rhotala* these processes are minute, while the phallus takes the form of a short, hollow, membranous cone or 'vesica'. The harpagones, or genital styles, are relatively large, narrow basally and irregularly expanded distally: their inner ventral margins are straight and apposed when at rest; the dorsal margins are produced into an eminence at the middle, while a vertical or curved spine may be present on the inner face near the base. A transverse bar connects the harpagones, and from its mid-point a long arcuate rod or tube extends to the apex of the ductus ejaculatorius.

The external female genitalia conform to a basic pattern, and except in *Rhotala* are of broadly similar appearance. The membrane between the pregenital sternite and the external orifice of the vagina is sclerotized, usually in a moderately broad transverse plate, the *subvaginal plate*. Each of the first valvulae is made up of a small, pigmented, rather thick subtriangular lobe which lies ventrally, the *ventral lobe*, and a sclerotized horizontal limb bearing three to five teeth: in most genera the teeth are stout, triangular or spinose; in *Rhotala* they are distally bifid, crenate, while about six narrow fimbriate lobes are also present. The second valvulae are membranous, and taper distally to a sudden dilation near the apex: each valvula is supported by two narrow sclerotized rods. The third valvulae are usually a little longer than broad, stout and deeply pigmented, a horizontal membranous lobe is present dorso-mesally, and the apical margin of the sclerotized lateral part of the valvulae is also narrowly membranous. In *Rhotala* the third valvulae are relatively long.

The internal genitalia of the male (Fig. 103, *m*, *n*) comprise paired testes situated above the eighth abdominal sternite. Each testis (*Tes*) consists of six spermatid tubules (*Spt*) in the genera examined (*Catonia*, *Amblycratus*), each of which is connected by a very short vas efferens (*Ve*) to the vas deferens (*Vd*). The vas deferens terminates in a knot of tight coils, apparently an epididymis (*Ep*), distad of which the duct widens to form a vesicula seminalis (*Vs*). The vesiculae seminales unite at the base of the ductus ejaculatorius (*Dej*), which at the same point receives the ducts of a pair of accessory glands (*AcGl*). In *Catonia* each accessory gland is greatly elongate and consists of a long tube filled at the apex with densely granular cells; these are replaced distally by clear highly refractive cells.¹ The distal portion of the tube is hollow and is filled only with secretion from the preceding. This secretion hardens in alcohol and readily takes up acid fuchsin.

The ovaries are paired and in *Catonia* each is made up of six ovarioles. The ducts of the ovarioles are united at their lower ends to form an oviduct and the two oviducts meet immediately before entering a broad thin-walled chamber (Fig. 107) which represents the inner end of the vagina. Close to their point of entry a large-mouthed sac, the bursa copulatrix (*Bc*), opens into the common chamber at the end of the vagina, while the long and relatively complex spermatheca (*Spt*) opens on to

¹ This refers to fixed material.

the chamber on the opposite side. The apex of an ovariole is shown in Fig. 103, *o*. The spermatheca varies in detail but little in gross structure. At its inner end is a small, slender subfusiform tube (1) with delicate spiral folding: this narrows at its lower end, and enters very abruptly on to a wider tube, with regular transverse constrictions: this tube in turn narrows and becomes thick-walled and densely invested with what appear to be circular muscle-fibres (2): near the genital chamber the spermatheca is broad and thin-walled. The bursa copulatrix is a pouch of ectodermal origin: its shape varies between genera. Its general surface is uniformly beset with minute sclerotized rings, either thick-walled or thin-walled (103, *k*; 107, *i*) each bearing six or more tubercles. The wall of the bursa within each ring is extremely thin. The haemocoelic surface of the bursa appears to be densely coated with muscle-fibres. The minute surface ornamentation may include less definite elements such as alternating papillate and fimbriate projections (28, *g*), or short rows of tubercles (*Amblycratus*). In addition to these the bursa may bear a sclerotized plate, armed with one or more spines directed obliquely into the lumen of the bursa. The spine is single in some genera (*Bathycephala*), while many are present in the *sobrina* group of *Catonia*; in *Plectoderes* they take the form of a shagreened covering to the plate. Independently of the presence of such a sclerite, the entrance to the bursa may be armed with one or two sclerites, one of them usually bearing a spine, and occasionally both spinose (*Mlanjella*, described below).

The nymphs of *Catonia* and *Epiptera* are similar to the adult in general form, though lacking the more bizarre specialization. The sides of the frons are beset with two rows of pits, probably secretory. Similar pits are present on the prothorax. Small groups of wax glands open near the base of the anterior wing pads, while large aggregations of wax glands occur laterally on abdominal segments 6, 7, and 8. The post-tibiae are unarmed. The dorsolateral processes of the ninth segment (see Fennah, 1945, *Proc. Ent. Soc. Wash.* 47:220) are short and distally crenulate, as in the delphacid *Peregrinus*. The nymphs are brown, powdered with grey.

The eggs are ellipsoidal, twice as long as broad, and devoid of surface ornamentation except at one pole, where about sixteen finger-like chorionic processes (Fig. 107, *h*) are closely aggregated to form a short peg-like eminence.

Points of fundamental interest in the morphology of the genera are to be found in the evidence of parallel evolution, the direction of specialization within the group, and the evidence of affinity with other families.

No attempt is made here to list all the characters which outcrop repeatedly, and presumably indicate the presence of a common group of genes. A few of the more obvious are given below, with some of the genera in which they occur: vertex with triangular areolets at latero-apical angles (*Catonia*, *Cythna*, *Hamba*, *Taloka*, *Nephelia*, *Usana*, *Gordiacea*, *Magadha*, *Callinesia*); pronotum with impressions and super-numerary ridges between the disk and lateral margins (*Catonia*, *Opsiplanon*, *Cnidus*, *Necho*, *Koloptera*, *Haitiana*, *Taloka*, *Gordiacea*, *Betatropis*, *Rupex* [described below]); tegmina with R, M, and Cu approximated at nodal line, Cu_{1b} strongly convex between claval apex and transverse vein (*Koloptera*, *Haitiana*, *Taloka*, *Gordiacea*, *Deferunda*); entrance to bursa copulatrix with a three-armed sclerite (*Elidiptera*, *Paraphradmon* [described below], *Kawanda*, *Epiusana*, *Cionoderella*, *Remosachilus*,

Paragandecca, *Mlanjella*, *Ballomarius*, *Kurandella*, *Lanuvia*, *Bathycephala*, *Moraballia*); dark tegmina flecked with pale green (*Sevia*, *Catonina*). It is of interest also to note the examples of convergent evolution between Achilidae and Derbidae. Both lay simple eggs, and the nymphal life is spent under bark or inside cavities in dead wood. In *Rhotala* the pregenital sternite of the female has assumed almost exactly the shape of that found in *Derbe* F., while the valvulae of the ovipositor have become modified into an approximation of the form of those of *Derbe*. In these two families the male genitalia have undergone considerable specialization, though not in the same manner. The granules along the tegminal veins in some genera would seem to correspond with those developed at the base of setae on the veins of certain Cixiidae (*Mnemosyne*). The sulphur-yellow and purple-black colour of *Plectoderes* is curiously similar to that of *Bothriocera cyanea* Fennah both in hue and pattern.

The Achilidae, on evidence so far obtained, belong to a group which includes Achilixiidae, Meenoplidae, and Kinnaridae. The fundamental characters shared by this group are: (1) a simple egg, (2) a cryptic nymphal life, (3) a reduced or obsolete ovipositor, (4) a tubular phallobase and a greatly reduced or obsolete phallus, (5) a long second post-tarsal joint, (6) a rostrum with a long apical segment, (7) a primitive tegminal venation (except in a few very specialized genera). The Kinnaridae have wax-bearing glands on the sixth, seventh, and eighth abdominal tergites, or on two of these: wax glands are present in this position in the nymphs of Kinnaridae and Achilidae and probably in those of the other families as well. The clavus is open in Achilixiidae as well as in Achilidae; in these two families the united claval vein enters the apex of the clavus; in Kinnaridae and Meenoplidae this vein enters the commissure, though narrowly so in the latter. The shape of the head of a typical prosotrope Kinnarid (*Quilessa*) is approximated in *Parakosalya*.

The form of the frons of *Breddiniola* is remarkably like that of a Meenoplid, though the median ocellus is of course lacking. The first valvulae of the ovipositor in Achilixiidae have ventral lobes, and the sclerotized limb a few teeth as found in Achilidae. The achilid pronotum, in all its forms except that with supernumerary ridges, may be compared with similar patterns in Achilixiidae, Kinnaridae, or Meenoplidae. While these four families form a natural group, it is remarkable how some of their lines of development exactly parallel those found in Derbidae.

The Achilidae are of world-wide distribution in the temperate and tropical zones, but reach their maximum development in the latter. According to the interpretation of genera given below, no tropical genus is common to both eastern and western hemispheres with the exception of *Rhotala*, which occurs in the East Indies and Central America.

In classifying the family the writer has found that genera fall into seven well-defined groups, here recognized as tribes (Rhotalini, Plectoderini, Myconini, Breddiniolini, Elidipterini, Achilini, Apatesonini), separated as shown in the key given below.

Of these, the Plectoderini form the largest group and its members include the smallest and most primitive of the Achilidae: it is also the most widely dispersed, although, curiously, no plectoderine has been recorded in Europe. The Myconini are predominantly composed of New World genera, and *Cixidia* (Europe) is the only endemic Old World representative while *Epiptera* is apparently holarctic. The two

genera of Breddiniolini are known only from West Africa and Fiji. The Elidipterini are almost entirely New World; *Mabira* and *Katbergella* (described below) are African, and *Neomenocria* (proposed below) European; similarly the Apatesonini occur in the New World, with *Ilva* (West Africa) as the only Old World representative. The Achilini are almost exclusively Old World and mostly found in Australia and Indonesia: American representatives include only the Neotropical *Nelidia* and *Flatachilus* (described below). The Rhotalini include only the aberrant *Rhotala*. The last tribe stands well apart from the others, not only in the extraordinary (though not fundamental) modifications of the genitalia of both sexes, but in the presence, or at least indication, of lateral sulci on the frons (a nymphal structure), in the greatly developed pronotal disk, and the flattened mesonotal disk devoid of a median carina, as well as in the seven-spined condition of the post-tibiae.

In compiling the keys to the genera of each tribe, the writer encountered serious difficulty only in the Plectoderini. In this compact group the intergradation between characters well contrasted at the extremes of their development means that at some dichotomies in the key there is a small group of genera which could be assigned to either alternative with equal justification. To meet this difficulty the writer has inserted genera twice in the key where it has appeared desirable to do so.

KEY TO THE TRIBES OF ACHILIDAE

- 1 (2) Width of vertex not two-thirds width of pronotum 3
- 2 (1) Width of vertex at least two-thirds width of pronotum 11
- 3 (4) Hind wing markedly notched at Cu₂; seventh abdominal sternite of female elongate, medioventral process of pygofer paired and detached; post-tibiae six-spined **Rhotalini**
- 4 (3) Hind wing and genitalia not as above; post-tibiae not more than four-spined 5
- 5 (6) Lateral pieces of clypeus forming almost one plane with disk; disk of pronotum not elevated, two straight carinae between each eye and tegula; post-tibiae two- or three-spined **Myconini**
- 6 (5) Lateral pieces of clypeus not as above; disk of pronotum elevated, or pronotum steeply inclined; a single marginal carina on pronotum between eye and tegula, or none; if two, they are curved 7
- 7 (8) Venation of tegmina irregular distally in M and Cu, often with a dark callosity in M, apical margin usually deeply rounded **Elidipterini**
- 8 (7) Venation of tegmina regular, apical veinlets numerous, no callosity developed in M, apical margin shallowly rounded or subtruncate 9
- 9 (10) Lateral marginal carinae of pronotum rounded to enclose a circular pit; Sc and R in tegmina separate from base; eyes excavate posteriorly **Breddiniolini**
- 10 (9) Lateral carinae not as above, sometimes obscure; Sc and R united in common stalk basally **Achilini**
- 11 (12) Sc in tegmen usually with a long anterior branch obliquely bounding costal cell distally, tegmina tectiform, apically sinuate or subtruncate, vertex with anterior margin truncate or concave **Apatesonini**

- 12 (II) Sc with anterior branch short, often recurved, tegmina shallowly rounded over dorsum when folded, apical margin strongly convex, vertex usually with anterior margin rounded or angulately produced at middle

Plectoderini**TRIBE RHOTALINI**

Head about half as wide as pronotum; pronotum elongate, three-quarters length of mesonotum; mesonotal disk flat, ecarinate medially, apical veinlets numerous, parallel. Female with seventh abdominal sternite greatly produced caudad. Male with medioventral process of pygofer paired, free from hind margin.

This tribe includes only the genus *Rhotala* Walker (haplotype *R. delineata* Walker) with about thirteen species in eastern Asia and one (*ambigua* Fowl.) in Central America. Dissections were made of the genitalia of paratypes of *ambigua* in the British Museum, and their structure was compared with that of Oriental species. It was found that *ambigua* does not stand apart from Asiatic members of the genus: in general appearance and in the genitalia of the female it is close to *delineata* Walker, while in the shape of the frons it agrees with *nebulosa* Distant.

Errada Walker, 1870 (haplotype *E. funesta* Walker) is a synonym of *Rhotala*.

***Rhotala ambigua* Fowler**

(FIGS. 1, 2)

1905. *Rhotala ambigua* Fowler, *Biol. cent.-Amer. Rhynch. Hom.* 1:138.

Anal segment of male elongate. Pygofer with two sinuate processes on each side, medioventral process paired, bounded basally by a transverse area of membrane.

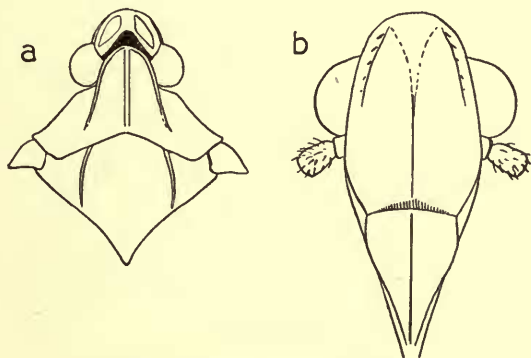


FIG. 1. *Rhotala ambigua* Fowler.

a, Head and thorax, dorsal view; b, frons and clypeus.

Phallobase tubular with three curved ribbon-like tapering processes on each side; aedeagus represented only by a conical vesica and a small oblique leaf-like plate on each side of it at base. Genital styles rather narrow, angulate, with a stout tooth directed dorsad.

Anal segment of female short, oval. Seventh abdominal sternite large, elongate-triangular, scoop-like. First valvulae sclerotized on upper margin with minute spines, lower margin deeply fimbriate, lobe slender, setose; second valvulae long, slender, tapering, setose; third valvulae very narrow and elongate, the dorsal lobe of each lacinate, setose.

The female genitalia show remarkably convergent development with those of *Derbe* F. (Derbidae). In the male the lack of sclerotization of the hind margin of the pygofer is apparently unique. The partial liberation of the paired sclerites of the

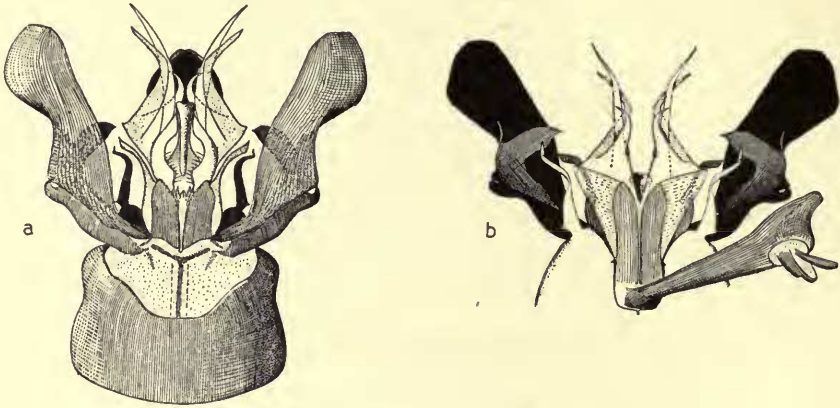


FIG. 2. *Rhotala ambigua* Fowler.
a, male genitalia, ventral view; b, same, dorsal view.

ventral process resulting from this de-sclerotization illustrates what must have occurred in the early development of Auchenorrhyncha when the primitive appendages of the ninth segment, the genital styles, acquired flexibility along the line of junction with the pygofer.

The transverse strut which interconnects the genital styles has not separated from the ninth sternum. The arms which provide attachment for the muscles at the base of the genital styles are thin and relatively small, but it is evident that mating occurs in the normal manner, with the third valvula of each side locked between the medio-ventral process and the genital style basad of the stout tooth; the male anal segment is thrust downward (the male being upside down) by the tip of the seventh sternite, with the curved sides of which the lateral processes of the pygofer may accidentally engage. These, like the spinose processes on the phallobase, are uncontrollable and almost certainly devoid of any definite function.

TRIBE MYCONINI

Head scarcely two-thirds as wide as pronotum, frons not elongate, median carina distinct on mesonotum, tegmina with regular venation and usually many apical veinlets, apical areoles rather long, two complete carinae between eye and tegula on each side. Pro-tibiae longer than pro-femora with trochanters. Members of this tribe are of a more or less uniform brown colouration.

KEY TO GENERA OF MYCONINI

- 1 (2) Lateral margins of frons subparallel, not distinctly ampliate below eyes, clypeus convex, tegmina with M four-branched . . . *Myconellus* gen. n.
- 2 (1) Lateral margins of frons diverging distally, ampliate below eyes, clypeus almost flat, tegmina with M not four-branched 3
- 3 (4) Vertex hollowed out, median carina feeble or absent, mesonotum quinque-carinate, if only feebly so, tegmina with M three-branched *Cixidia* Fieb.
- 4 (3) Vertex not as above, usually medially carinate 5
- 5 (6) Sides of clypeus forming an angle with disk; dorsal lateral marginal carina of pronotum much stronger than ventral *Epiptera* Metc.
- 6 (5) Sides of clypeus shallowly rounded into disk, almost in same plane; dorsal lateral carina of pronotum not stronger than ventral . . . *Myconus* Stål

MYCONUS Stål

1862. *Myconus* Stål, Bidrag Rio Janeiro-trakt. Hemipt. fauna, 2, K. svenska Vetensk. Akad. Handl. 3(6): 65.

Haplotype, *Achilus conspersinervis* Stål.

Myconus conspersinervis Stål

(FIG. 3)

1862. *Achilus conspersinervis* Stål, loc. cit.: 3.

Male: length, 9.5 mm.; tegmen, 11.0 mm.

Wings with Sc six-branched at margin, R three-branched, M three-branched.

Anal segment of male long, narrow, evenly rounded at apex to a minute sharply deflexed peg medially. Aedeagus in ventral view with a long straight spine arising laterally near base directed caudad, a long vertical plate on each side with its dorsal margin straight, ventral margin tapering towards it distally, sharply bent to meet it at apex; middle portion tubular, a spine on each side at apex curved downward, mesad and anteriorly; median ventral plate terminating acutely at apex. Genital styles in profile narrowly subovate, a long stout process arising near middle on inner face near dorsal margin, curved posteriorly, swollen and bearing three spines, one directed mesad-caudad, one caudad, and one cephalad; a small auriculate sclerotization on an eminence near base of dorsal margin.

Redescribed from one male taken at Tijuco Preto, Espiritu Santo, Brazil, in collection of British Museum (Natural History). This specimen was compared with Stål's type.

Myconus trivittatus sp. n.

(FIG. 4)

Male: length, 6.0 mm.; tegmen, 8.0 mm.

Clypeus with maxillary plates forming a shallow curve with disk in apical third but separated from it by lateral carinae of disk. Pronotum with lateral carinae of disk strongly divergent, reaching hind margin.

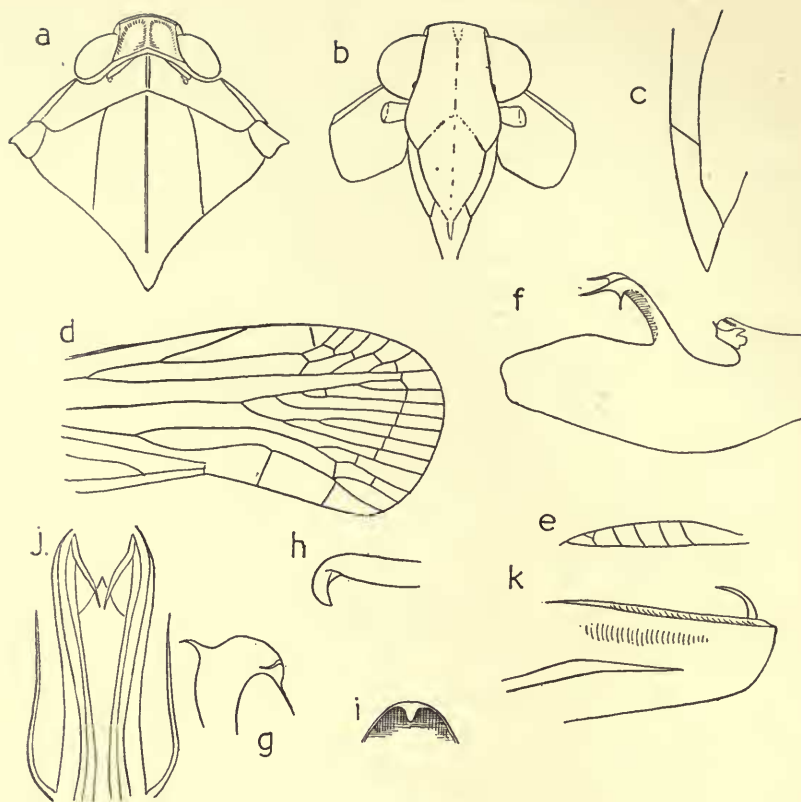


FIG. 3. *Myconus conspersinervis* Stål.

a, head and thorax, dorsal view; *b*, frons and clypeus; *c*, apical portion of clypeus in profile; *d*, apical portion of tegmen; *e*, vein Sc in wing; *f*, right genital style; *g*, apex of process on style; *h*, apex of anal segment in profile; *i*, same in posterior view; *j*, aedeagus, ventro-posterior view; *k*, apex of aedeagus, lateral view.

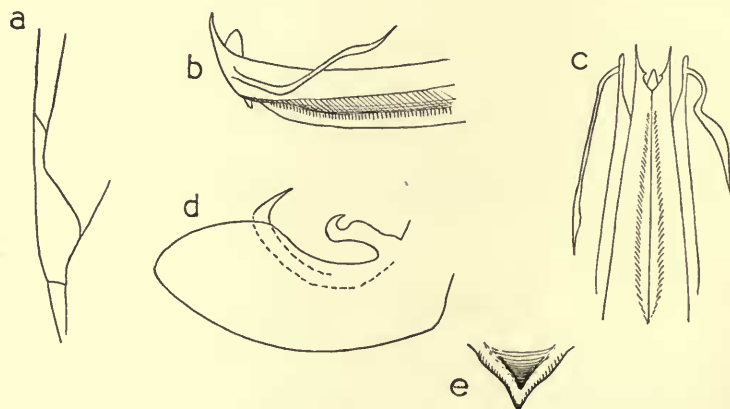


FIG. 4. *Myconus trivittatus*, sp. n.

a, apex of clypeus in profile; *b*, aedeagus, right side; *c*, same, postero-ventral view; *d*, right genital style; *e*, apex of anal segment, posterior view.

Fuscous; tegmina testaceous yellow, abruptly transparent at stigma, a band from base of commissural margin to middle of costa, another from apex of clavus to stigma, a diffuse spot in membrane beyond apex of clavus reaching towards apical angle and a rather broad marginal band fuscous, a few small fuscous spots along the major veins. Wings transparent basally becoming smoky towards margin.

Anal segment of male elongate, suboval, deflexed at apex in a triangular flap, the apex lodging between two points on phallobase. Phallobase tubular, dorsal and ventral margins subparallel in profile, curved dorsad distally, with a median triangular vertical plate in the sagittal plane and a longer spine on each side at tip; a long stout sinuate process arising on each side subapically, directed anteriorly, that of right side directed obliquely antero-dorsad, that of left side longer, directed anteriorly. Genital styles elongate, subovate in profile, apical margin very oblique, convex, a stout tooth arising near dorsal margin on inner face at middle, abruptly bent anteriorly in apical quarter and tapering to a point; a short process on dorsal margin near base terminating in a deep hook.

Described from one male collected at Tijuco Preto, Espirito Santo, Brazil (in collection of Brit. Mus. N.H.). This species is smaller than *conspersinervis* Stål and is most readily separated from it by the more flattened apical portion of the clypeus, as indicated in the profile figures.

The species *dulcis* Gerst., doubtfully referred by its author to *Myconus* (Gerstaecker 1895), is a cyphoceratopine Tropiciduchid possibly belonging in *Arenasella* Schmidt.

The writer is unable to separate *Messoides* Metcalf (Metcalf, 1938) (orthotype, *M. uniformis* Metcalf) from *Myconus* Stål.

MYCONELLUS gen. n.

Closely similar in general appearance to *Myconus* Stål but smaller.

Vertex with median carina in basal half; frons with lateral margins subparallel, median carina weakly present, lateral carinae not prominent; clypeus with lateral carinae weak, median carina absent, antennae with second segment ovoid, somewhat longer than broad, ocellus just touching eye. Pronotum longer than vertex, lateral margins long, ventral margin of lateral fields rounded-transverse; mesonotum longer than vertex and pronotum together, tricarinate. Post-tibiae trispinose. Tegmina with clavus terminating basad of middle, M with four main branches, Cu forking distad of Sc+R fork.

Anal segment ovate. Hind margin of seventh abdominal sternite medially produced caudad. Type species, *Myconellus tucumanus* sp. n.

Myconellus tucumanus sp. n.

(FIG. 5)

Female: length, 3.1 mm.; tegmen, 5.5 mm.

Yellowish-brown mottled with pale fuscous. Tegmina yellowish-brown, veins faintly infusate at intervals, a fuscous band overlying apical transverse veins and passing to margin at Curb.

Anal segment ovate. Ovipositor with first valvulae narrow, in profile with dorsal

margin horizontal, curved upward at apex, ventral margin convex, tapering distally, three to five teeth, equidistant, on dorsal margin, the apical spine long. Third valvulae subquadrate in profile, dorsal margin slightly concave, a rather slender tapering membranous appendage at apex. Bursa copulatrix devoid of sclerotized

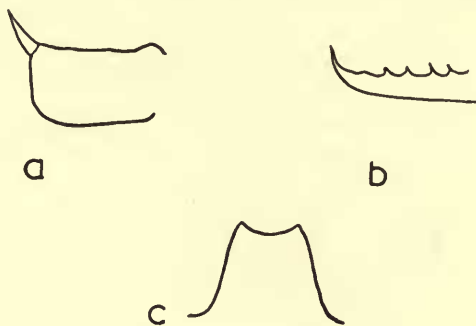


FIG. 5. *Myconellus tucumanus*, sp. n.

a, third valvula of ovipositor, right side; b, second valvula of ovipositor, right side; c, middle portion of posterior margin of pregenital sternite.

armature, uniformly covered with small rings. Hind margin of seventh abdominal sternite of female produced caudad at middle in a subquadrate lobe almost as long as broad, with lateral margins slightly convex and tapering distally, and apical margin shallowly excavate.

Described from a single female collected in Tucuman Province, Argentina, B.M. 1902-288. Type in Brit. Mus. (N.H.). This genus is close to *Myconus* but is readily separated by its smaller size, as well as by the characters given. It differs from *Epiptera* in the shape of the vertex and in tegminal venation.

CIXIDIA Fieber

1866. *Cixidia* Fieber, *Verh. zool.-bot. Ges. Wien.* **16**:499, pl. VII, fig. 5.

Haplotype, *Cixius confinis* Zetterstedt.

As the writer has not seen *C. confinis* the above tribal assignment should be regarded as tentative.

EPIPTERA Metcalf

1922. *Epiptera* Metcalf, *Canadian Ent.* **54**:264.

Orthotype, *Flata opaca* Say 1830, *J. Acad. Nat. Sci. Phil.* **6**:239.

This genus, as far as the writer is aware, is found only in the holarctic region.

Epiptera fusca (Walker) comb. n.

(FIGS. 6, 7)

1851. *Monopsis fusca* Walker, *List Hom. Ins. Brit. Mus.* **2**:326.

1851. *M. floridae* Walker, *ibid.* 326.

The writer has compared the types of *fusca* Walker and *floridae* Walker and is satisfied that they are conspecific. The former is slightly larger than the type of

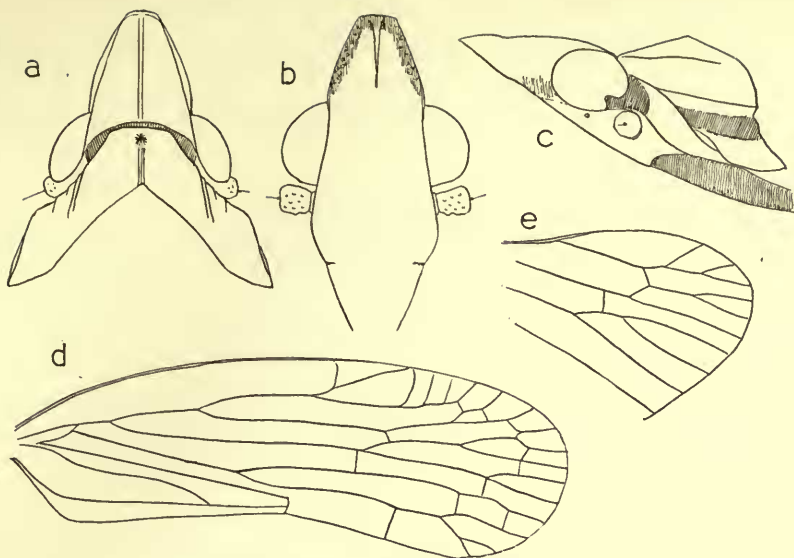


FIG. 6. *Epiptera fusca* (Walker).
 a, head and prothorax; b, frons; c, head in profile; d, tegmen; e, wing.

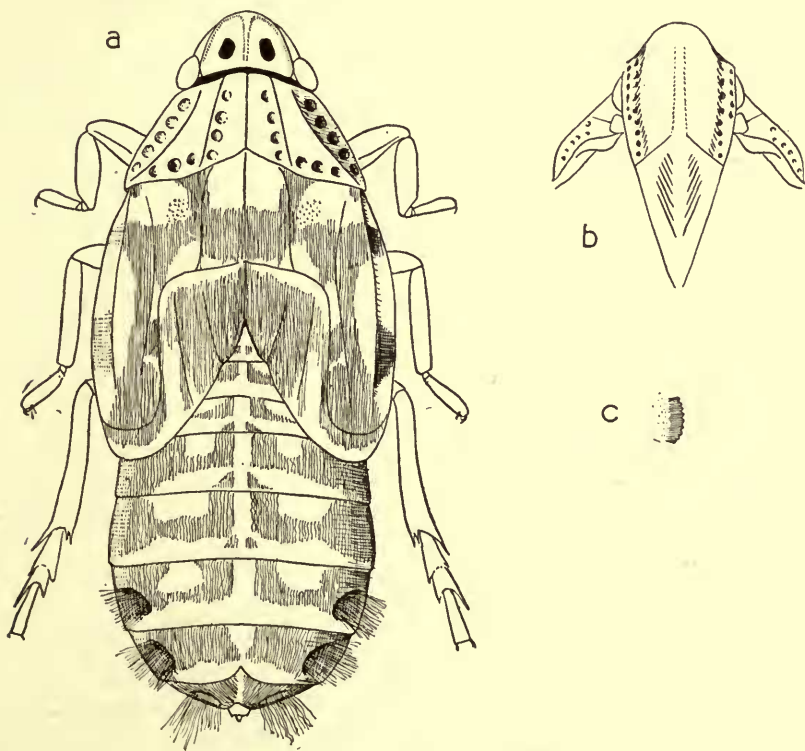


FIG. 7. *Epiptera fusca* (Walker).
 a, fifth-instar nymph; b, frons; c, dorso-lateral process of ninth abdominal segment.

floridæ, but this discrepancy may be resolved if it be assumed that the type of *fusca*, which lacks the abdomen, is a female. As *fusca* is listed by Walker before *floridæ* the latter must be suppressed as a synonym. The figures are from the type of *fusca*.

TRIBE ELIDIPTERINI

Head half as wide as pronotum, frons elongate, no complete carina on pronotum between eye and tegula, or only one, median carina usually indicated on mesonotum, or fully present; tegmina often with distorted venation in membrane, apical areoles usually short. Seventh sternite of female not produced or only very slightly so.

The Elidipterini are all pallid, being powdered with white or greyish-white wax. In most genera the apical portions of the tegmina overlap when the latter are at rest. They have probably been derived from Achilini through forms similar to *Aneipo*.

KEY TO GENERA OF ELIDIPTERINI

- 1 (2) Tegmina with a distinct rounded dark callus distally in M; subapical venation markedly irregular 3
- 2 (1) Tegmina without such a callus; venation nearly regular 13
- 3 (4) Tegmina almost three times as long as broad at widest part 5
- 4 (3) Tegmina less than 2.5 times as long as wide 9
- 5 (6) Vertex ecarinate; tegmina with two subapical callosities, apical margin sinuate *Messeis* Stål
- 6 (5) Vertex with a broad median carina; tegmina with one subapical callus, apical margin convex, deeply rounded 7
- 7 (8) Claval veins united basad of middle of clavus *Neomenocria* gen. n.
- 8 (7) Claval veins united distad of middle *Paraphradmon* gen. n.
- 9 (10) Frons more than 1.4 times as long as broad; tegmina less than 2.4 times as long as broad, with two callosities subapically 11
- 10 (9) Frons 1.4 times as long as broad; tegmina 2.4 times as long as broad, with one minute callus *Prinoessa* gen. n.
- 11 (12) Anterior margin of vertex almost transverse, vertex longer at sides than in middle line; frons 1.7 times longer than broad; third valvulae of ovipositor three times as long as broad *Metaphradmon* gen. n.
- 12 (11) Anterior margin of vertex strongly convex, vertex not or scarcely longer at sides than in middle line; frons 1.9 times as long as broad; third valvulae 1.9 times as long as broad *Elidiptera* Spin.
- 13 (14) Frons not twice as long in middle line as broad 17
- 14 (13) Frons more than twice as long in middle line as broad 15
- 15 (16) Width of costal cell one-fifth length to stigma. Common claval vein more than two-thirds length of first claval vein before junction *Parelidiptera* gen. n.
- 16 (15) Anterior margin of vertex broadly convex. Width of costal cell much less than one-fifth length. Common claval vein not nearly two-thirds length of first claval vein before junction *Katbergella* gen. n.

- 17 (18) Width of costal cell at widest part one-quarter length to stigma. Sc simple
Uniptera Ball.
- 18 (17) Width of costal cell less than one-quarter length. Sc with supernumerary
 veinlets *Mabira* gen. n.

NEOMENOCRIA gen. n.

Vertex between eyes wider than long in middle line, anterior margin carinate, convex, lateral margins carinate, straight, diverging caudad, posterior margin excavate approximately to level of anterior margin of eyes, disk with a marked depression on each side of broad median ridge which widens distally; frons twice as long as broad, lateral margins straight or slightly sinuate to below level of antennae, thence incurved to suture, width at apex 1.4 times width at base, median carina broad, percurrent, fronto-clypeal suture slightly impressed, clypeus with median carina broad. Antennae ovate. Pronotum in middle line slightly shorter than vertex, disk large; mesonotum tricarinate.

Tegmina not quite three times as long as wide, costal margin strongly convex near base, apical margin evenly rounded. Sc+R forking slightly distad of Cu1 fork, latter approximately level with apex of clavus, a small callus in M three-quarters from base, approximately seven apical areoles in Sc and R, five in M, and two in Cu.

Posterior margin of pygofer biconcave, medioventral process broad.

Type species, *Elidiptera advena* Spinola 1839. *Ann. Soc. ent. Fr.* 8:305, pl. 6, figs. 3, a, b, c.

This European genus would seem to be near *Paraphradmon* and *Parelidiptera* but differs markedly in the shape of the vertex, the relative size of the antennae and the tegminal venation.

ELIDIPTERA Spinola

1839. *Elidiptera* Spinola, *Ann. Soc. ent. Fr.* 8:304. Logotype, *E. callosa* Spinol.

1843. *Helicoptera* Amyot and Serville, *Hist. nat. Ins. Hémipt.*: 526.

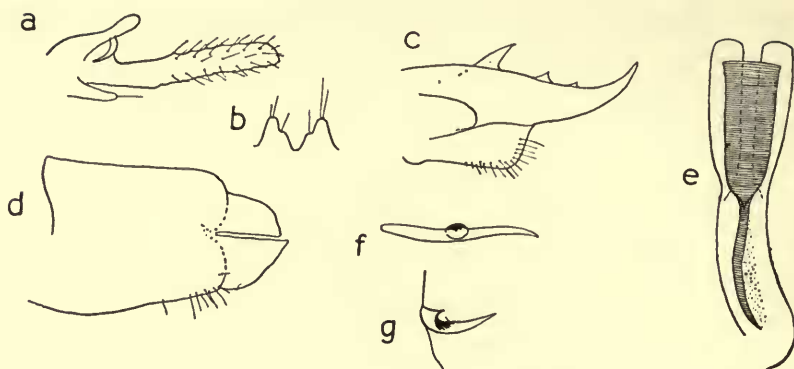
Elidiptera callosa Spinola

(FIG. 8)

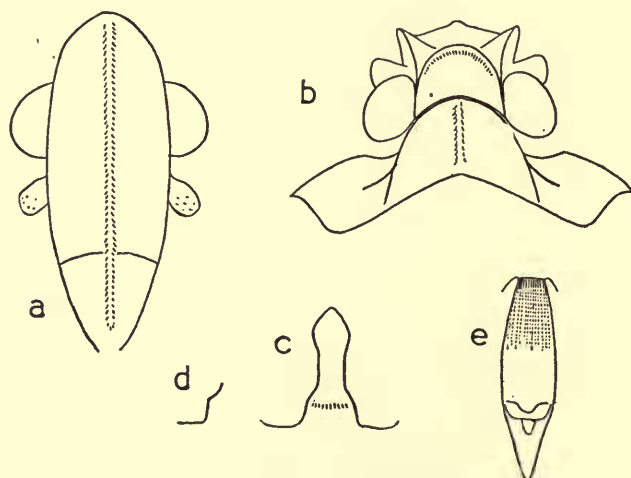
1839. *Elidiptera callosa* Spinola, *Ann. Soc. ent. Fr.* 8:305.

Anal segment of female short, anal style elongate, setiferous. Ovipositor with first valvulae curved shallowly dorsad to form a stout spine at apex, three broad teeth on dorsal margin, thin, progressively reduced distally, ventral lobe unsclerotized, setiferous; third valvulae with dorsal margin horizontal, membrane on apical margin deep, narrowly cleft near middle. Vagina supported by a deep flat sclerotized plate on each side and a shallowly scoop-like plate ventrally, the last extending basally into a narrow scoop-like lobe. Bursa copulatrix armed with a sclerite consisting of a transverse narrow lenticular plate bearing at its middle a long stout spine directed into the lumen of the bursa.

Redescribed from two females taken at Kutari Sources, British Guiana, by G. A. Hudson (Jan.-Feb. 1936), *Brit. Mus.* 1936-360.

FIG. 8. *Elidiptera callosa* Spinola

a, telson, side view; b, latero-ventral processes of anal segment of female; c, first valvula of ovipositor, left side; d, third valvula of ovipositor, left side; e, sclerites supporting vagina; f, sclerite in bursa copulatrix, plan; g, same, side view.

FIG. 9. *Elidiptera globulifera* (Walker).

a, frons and clypeus; b, head and pronotum; c, medioventral process of pygofer; d, basal portion of same in profile; e, anal segment, dorsal view.

***Elidiptera globulifera* (Walker) comb. n.**

(FIG. 9)

1858. *Euria globulifera* Walker, *Insecta Saundersiana*, Hom.: 108.

The type of this species, which is a male, superficially differs from *callosa* in its more pallid coloration, this being most pronounced in the tegmina, where the fuscous markings of *callosa* are developed in a light reddish-brown. It is not justifiable to place these species in synonymy without comparison of genitalia.

Elidiptera docilis Walker belongs in the Tropicuchid genus *Alcestis*.

MESSEIS Stål

1862. *Messeis* Stål, Bidrag Rio Janeiro-trakt. Hemipt. 2, K. svenska Vetensk. Akad. Handl. 3(6): 66. Haplo type, *M. fuscovaria* Stål.

Vertex between eyes 1.8 times as wide as long in middle line, anterior margin carinate, curved, obtusely subangulate, lateral margins carinate, converging anteriorly, posterior margin excavate, disk ecarinate, slightly depressed; frons 1.7 to 2.0 times longer than broad, lateral margins shallowly convex, carinate, median carina percurrent to distal portion of clypeus; rostrum just attaining post-coxae. Pronotum as long as or exceeding vertex, disk large, medially and laterally carinate, lateral carinae convex; mesonotum tricarinate. Post-tibiae with one spine distad of middle.

Tegmina 2.7 to 2.9 times as long as wide at widest part, anterior margin slightly convex, apical margin deeply rounded with a shallow sinus at Cu_{1b} ; $Sc+R+M$ forking less than one-quarter from base, $Sc+R$ forking about one-third from base, M simple to nodal line, Cu_1 forking about two-fifths from base, Sc simple to apex or once forked, R two-branched, M with five apical veins, Cu_{1a} with three, Cu_{1b} with two; two callosities, one in subapical cell M_3 and one basad of this on Cu_{1a} . Wings with R forked very near apex, M three-branched.

Anal segment of male short, telson long. Pygofer with medioventral process short, stout, broader across base than long.

Messeis fuscovaria Stål

(FIG. 10)

1862. *Messeis fuscovaria* Stål, loc. cit.: 66.

Female: length, 3.8 mm.; tegmina, 5.9 mm.

The tegminal venation of Stål's female type is slightly variable; the vein shown in broken line is absent from one side.

Messeis elidipteroides sp. n.

(FIG. 11)

Male: length, 5.2 mm.; tegmen, 6.5 mm.

Frons with median carina very prominent at base; vertex three times as wide as long in middle line.

Testaceous-grey; tegmina greyish, translucent, a series of five oblique pale fuscous narrow bars in costal cell, the penultimate bar near stigma extending across to apical areoles of Cu_{1a} , apical areoles infusate between M_3 and Cu_{1b} , subapical areoles narrowly fuscous close to margins, a series of four narrow pale oblique lines across corium between Sc and Cu , very faint.

Anal segment of male very short, telson elongate, deflexed. Pygofer with medioventral process stout, twice as broad as long in ventral view, apical margin sinuate; this process in lateral view curved, stout, subtriangular. Phallobase comprising a straight sclerotized bar dorsally in middle line obliquely truncate at apex; with a spine directed upward at its base; below this a semi-membranous scoop-like structure

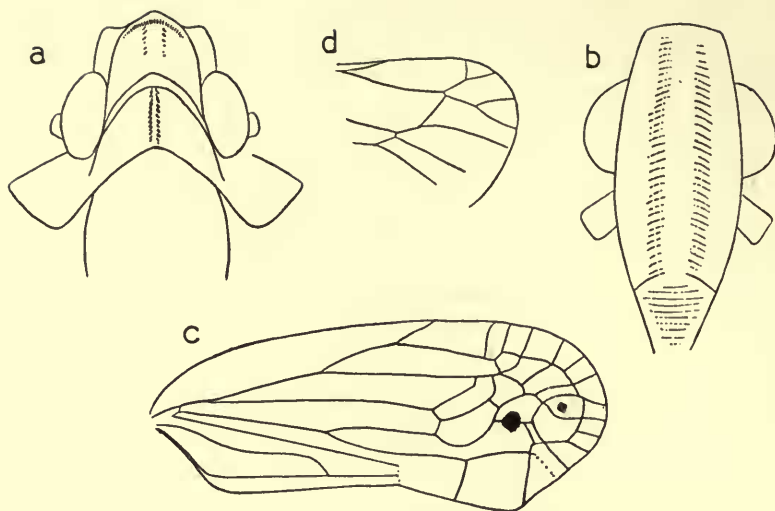


FIG. 10. *Messeis fuscovaria* Stål.
a, head and pronotum; b, frons; c, tegmen; d, apex of wing.

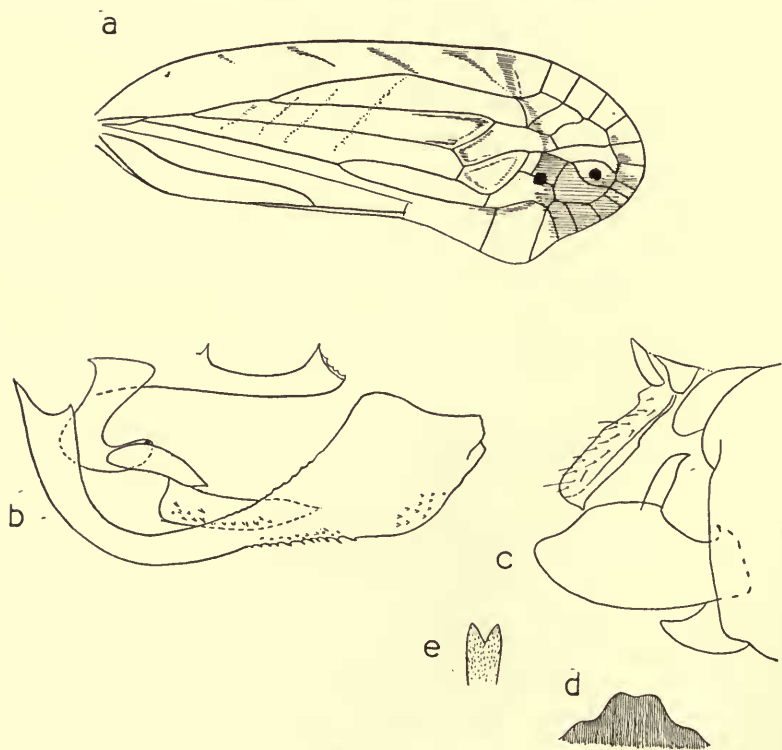


FIG. 11. *Messeis elidipteroides*, sp. n.
a, tegmen; b, aedeagus, left side; c, anal segment, posterior margin of pygofer and genital style, right side; d, medioventral process of pygofer; e, apex of process of aedeagus.

supported laterally at base by sclerotized plates, and below by a denticulate plate on each side of middle line. Phallic appendages stout, curved dorsad distally and in profile each expanded into a broad quadrate plate at apex, dorsal and ventral margins denticulate. Genital styles rhomboidal in profile with a stout pointed process arising on inner face near dorsal margin, and a crescentic transverse sclerotization on dorsal margin at base.

Described from one male collected by A. Maller (1930) labelled 'Brazil, Sta. Catharina, Hansa Humboldt W. 50, S. 56 100 m.' Brit. Mus. 1930-286. This species differs from the type species in size, proportions of vertex and frons, in details of tegminal venation, and in colour pattern.

PARAPHRADMON gen. n.

Vertex between eyes 2.5 times as wide as long in middle line, anterior margin carinate, curved, obtusely subangulate, lateral margins carinate, converging anteriorly, posterior margin excavate, disk somewhat depressed with a strong median carina; frons longer than broad (1.6:1), lateral margins shallowly convex, carinate, median carina distinct, not much raised; clypeus with a triangular depressed area at extreme base, slightly tumid medially but devoid of a distinct carina; rostrum attaining post-coxae, apical segment half length of subapical; antennae with second segment short, a little longer than broad. Pronotum slightly longer than vertex, disk large, medially and laterally carinate, lateral carinae convex, one carina laterally between eye and tegula, and a short trace of a second; mesonotum tricarinate. Post-tibiae with one spine.

Tegmina about 2.8 times as long as wide at widest part, anterior margin slightly convex, apical margin deeply rounded, devoid of any sinus; Sc+R+M forking one-sixth from base, Sc+R forking about two-fifths from base, M simple to nodal line, Cu₁ forking at middle of tegmen slightly basad of apex of clavus; Sc simple to apex (omitting the stigmal branch), R two-branched, M with five apical veins, Cu_a and Cu_b each two-branched; a callus in cell M₃, a small elongate rectangular cell near it on Cu_a. Wings with R simple to apex, M with three branches.

Seventh abdominal sternite of female with posterior margin produced medially.

Type species, *Paraphradmon albus* sp. n.

Paraphradmon albus sp. n.

FIG. 12

Female: length, 6.5 mm.; tegmen, 7.5 mm.

Stramineous to pallid. Tegmina white, three short faint darker lines obliquely in costal cell at stigma, callus in M fuscous. Wings translucent. Insect powdered white.

Anal segment of female very short, tenth segment short, ring-like, produced into a pair of short lobes on posterior margin, each lobe tricuspidate and bearing a seta at apex of each cusp, telson long, subcylindrical. Seventh sternite produced at middle of posterior margin into a small triangular lobe, wider across base than long in middle. Subvaginal plate scoop-like, narrowing to a point ventrally. Dorsal wall of vagina sclerotized into a rectangular plate three times as long as wide. First valvulae

of ovipositor in profile with dorsal and ventral margins parallel, the dorsal margin decurved near apex and bearing four teeth, of which the second from the base is short, and the apical is provided with a short submarginal tooth at its base; ventral lobe of first valvula thin, carried vertically, its dorsal margin straight, ventral margin convex, setose. Third valvulae only a little longer than broad, subtriangular, dorsal margin longer than ventral, apical membrane rounded at dorsal angle; a series of five

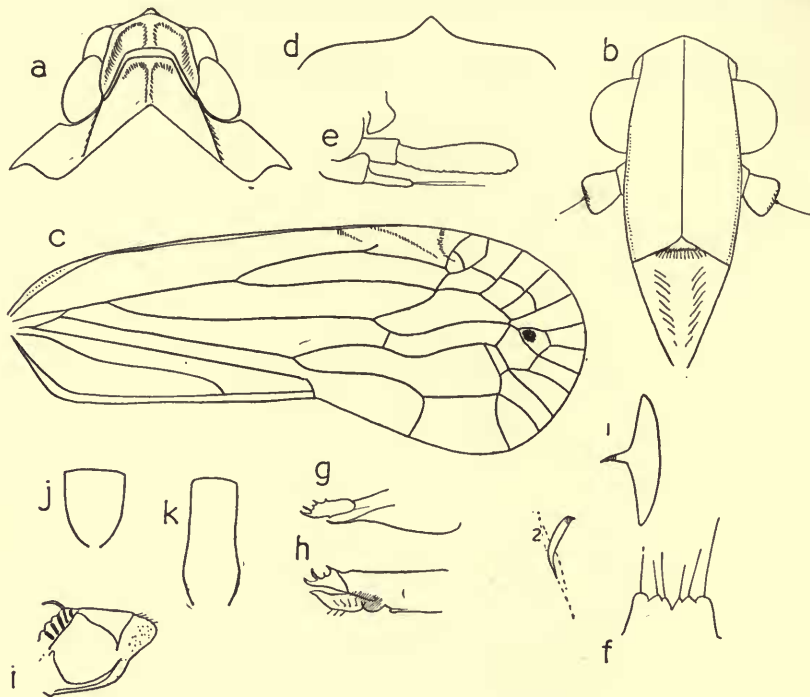


FIG. 12. *Paraphradmon albus*, gen. et sp. n.

a, vertex and pronotum; b, frons and clypeus; c, tegmen; d, posterior margin of pregenita sternite; e, anal segment of female, lateral view; f, processes of anal segment; g, h, ventro-lateral and lateral views of first valvulae; i, right third valvula, inner aspect; j, posterior view of subvaginal plate; k, ventral view of sclerite in vagina; l, lateral and 2 dorsal views of sclerite on bursa copulatrix near entrance.

vertical ridges on inner face of valvula near base, descending obliquely. Bursa copulatrix bearing a small lenticular sclerite laterally near opening into vagina, this sclerite bearing a single tooth projecting obliquely into lumen of bursa.

Described from a single female in the Brit. Mus. (N.H.) taken at Tijuco Preto, Espiritu Santo, Brazil. *Paraphradmon* in general appearance is closest to *Messeis*.

PRINOESSA gen. n.

Vertex basally twice as wide between eyes as long in middle line, anterior margin carinate, curved, obtusely subangulate, lateral margins carinate, only slightly converging between eyes, rounded into apical carina, posterior margin roundly excavate, disk depressed, devoid of median carina but with callosities on hind margin.

Frons longer in middle than broad (about 1.5:1), lateral margins very shallowly convex, expanding to below level of antennae then gently incurved to clypeus, carinate, scarcely raised, median carina feeble, clypeus with median carina obsolete, laterally carinate. Antennae surpassing eyes. Pronotum slightly longer than vertex, disk large, carinate laterally and in basal half of middle line, depressed medially

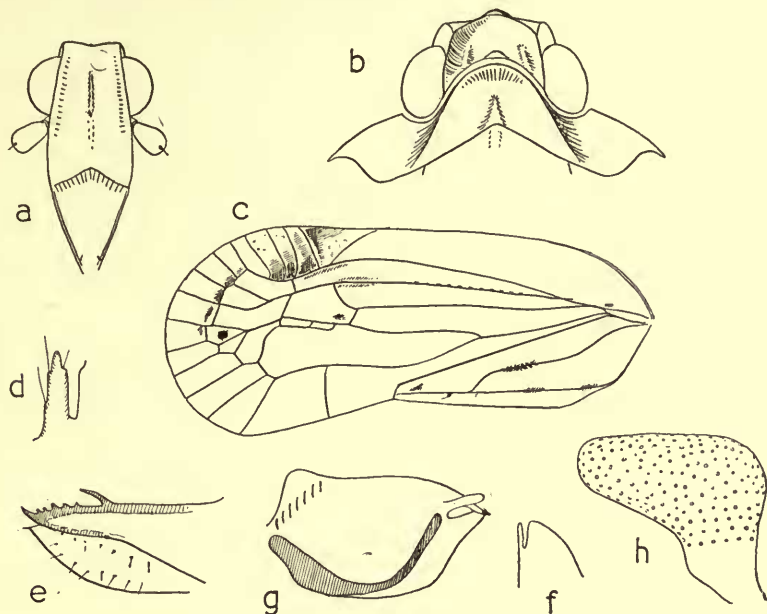


FIG. 13. *Prinoessa livida*, gen. et sp. n.

a, frons and clypeus; b, vertex and pronotum; c, tegmen; d, one of paired processes on anal segment of female; e, first valvula, lateral view; f, dorsal view of apex of third valvula, semi-diagrammatic; g, third valvula, inner aspect; h, bursa copulatrix, semi-diagrammatic.

behind anterior margin, one complete and one incomplete carina on each side between eye and tegula; tegulae large, ecarinate, mesonotum tricarinate.

Tegmina about 2.4 times as long as wide at widest part, anterior margin almost straight except near base, apical margin deeply evenly rounded; Sc+R+M forking two-thirteenths from base, Sc+R forking one-fifth from base, M forking at level of stigma, Cu forking about one-third from base; Sc with about four branches, R three-branched, M four-branched (1, 2, 3, 4), Cu_{1a} two-branched, Cu_{1b} two-branched, a callus in subapical cell M₃.

Type species, *Prinoessa livida* sp. n.

***Prinoessa livida* sp. n.**

(FIG. 13)

Female: length, 5.1 mm.; tegmen, 6.0 mm.

Vertex with three callosities on hind margin, the outer two longer than middle;

frons 1.4 times as long as broad, slightly convex in basal half, median carina feeble, distinctly stronger between middle and basal quarter.

Pallid stramineous; carinae of vertex tinged orange-yellow, pronotum and mesonotum near carinae minutely speckled fuscous-piceous. Tegmina greyish-white, costal cell, veins, and to a less degree intervenal areas minutely speckled fuscous; two dark agglomerations on posterior claval vein, a faint much-broken fascia from stigma to apex of clavus, a clouded line across inner portion of anterior apical areoles fuscous-piceous.

Anal segment short, a pair of narrow quadrisetose lobes directed posteriorly, anal style elongate-ovate. First valvulae of ovipositor with first, fourth, and apical teeth larger than remainder; ventral lobe large, membranous, lenticular, sparsely setiferous; third valvulae broad, with dorsal margin almost horizontal, ventral margin convex, apical angle deeply cleft giving rise to a finger-like lobe; a strong spine arising on inner face near base curved upward and mesad.

Bursa copulatrix devoid of sclerotized processes, ornamented with small circles evenly and rather widely spaced.

Described from one female collected at Kutari Sources, British Guiana, by G. A. Hudson (Jan.-Feb. 1936) Brit. Mus. 1936-360. The genus *Prinoessa* is readily distinguished by the form of the vertex and tegmina; the structure of the third valvulae of the ovipositor in the type species is noteworthy in that it exhibits a complexity unusual in the group, though it is not difficult to understand how it has been reached by modification of the sclerotic elements found in other genera such as *Paraphradmon*.

METAPHRADMON gen. n.

Vertex across base longer than in middle line (4:1), only very slightly produced before eyes, medially carinate, anterior margin carinate, very obtusely angulate, subtruncate, lateral margins carinate, straight, subparallel, posterior margin angulately excavate (about 130°); frons convex, longer than broad (about 1.7:1), a little wider at base than at apex, lateral margins convex, basal margins truncate, disk slightly depressed between middle line and margins, lateral carinae not foliately produced; clypeus short, medially and laterally carinate, a little more than half as long as frons; rostrum with subapical segment longer than apical; antennae ovate, not sunk in a depression, ocelli narrowly separated from eyes, eyes slightly excavate below, not markedly overlapping pronotum. Pronotum with disk well defined, medially and laterally carinate, lateral carinae straight or slightly concave, diverging basad, ventral margin of lateral pronotal lobes angulate and oblique; mesonotum longer than vertex and pronotum combined, tricarinate distinctly; pro-tibiae about as long as pro-femora, post-tibiae with a single spine in basal third. Tegmina 2.5 times as long as broad, Sc+R forking at basal third, Cur forking slightly distad of union of claval veins, about sixteen apical areoles distad of stigma, clavus terminating distad of middle. Wings with R four-branched, M three-branched.

Anal segment of female elongate-ovate.

Type species, *Metaphradmon tortrix* n. sp.

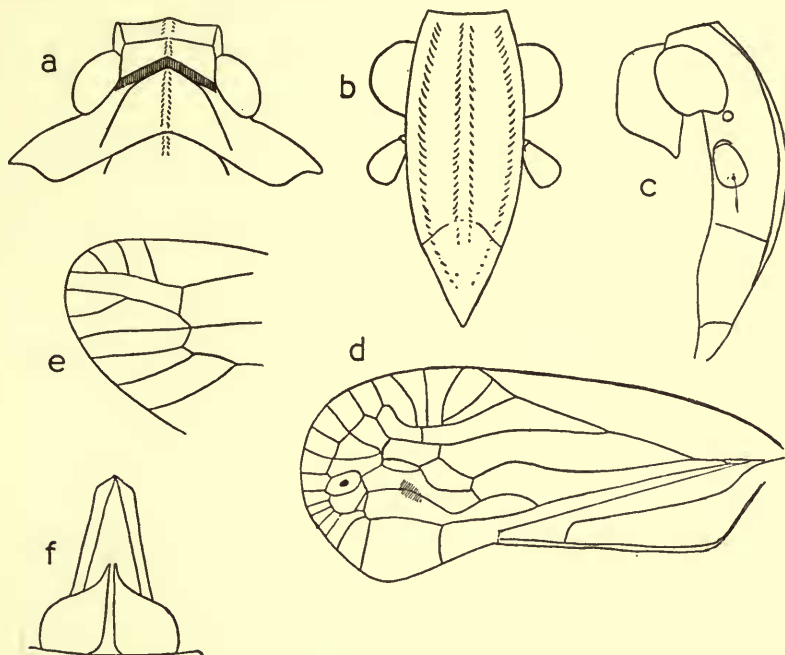
***Metaphradmon tortrix* sp. n.**

(FIG. 14)

Female: length, 6.0 mm.; tegmen, 9.8 mm.

Head vertical behind posterior margin of vertex.

Stramineous-testaceous; clypeus, a band bordering median and lateral carinae of frons, vertex, and pronotum, lateral fields of pronotum except a wedge-shaped mark and two spots, a short stripe anteriorly and a broad transverse band on mesonotal

FIG. 14. *Metaphradmon tortrix*: gen. et sp. n.

a, vertex and pronotum; b, frons and clypeus; c, head in profile; d, tegmen; e, apex of wing; f, posterior margin of pregenital sternite, eighth segment and third valvulae, ventral view.

disk, lateral fields of mesonotum except for a sinuate spot, legs except bases of pro-tibiae and meso-tibiae, ferruginous to fuscous. Tegmina mostly fuscous, four irregular curved spots in costal cell, cells Sc and Sc+R largely sprinkled testaceous; a wedge-shaped stripe in Sc at stigma, a stripe across Sc4 and Sc5, a spot or area in all subapical cells and apical cells of R, and as far as M2 and a large spot beyond apex of clavus and two spots in cell distad of it ochraceous; veins concolorous with corium or membrane which they traverse, two calloused spots in M piceous. Wings slightly infusate, veins darker, except M-Cu cross-vein which is pallid.

Posterior margin of pregenital sternite of female transverse; lateral portions of eighth segment produced into a point. Ovipositor with third valvulae about three times as long as broad.

Described from a single female from San Paulo, Brazil. Type in Naturhistoriska Riksmuseum, Stockholm. *Metaphradmon* is distinguished by the shape of the vertex, the tegminal venation, and the shape of the ventro-lateral lobes of the eighth segment.

KATBERGELLA gen. n.

Vertex between eyes about 3.5 times as wide as long in middle line, anterior margin carinate, broadly convex, lateral margins carinate, converging distally and curving into anterior margin, posterior margin deeply excavate, disk depressed, median carina strong in basal half, absent distally; frons more than twice as long as broad, lateral margins straight, diverging to below level of antennae, slightly incurved to suture; clypeus not sharply demarcated from frons, antennae with second segment

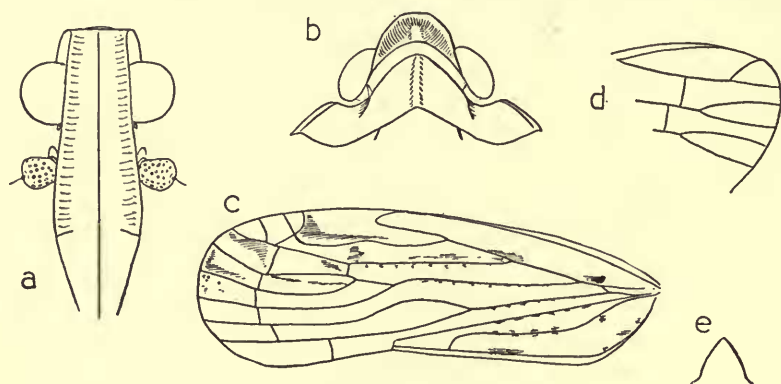


FIG. 15. *Katbergella griseobrunnea*: gen. et sp. n.

a, frons; b, vertex and pronotum; c, tegmen; d, apex of wing; e, medioventral process of pygofer.

short, slightly longer than broad. Pronotum much longer than vertex, disk large, medially and laterally carinate, two carinae at each lateral margin between eye and tegula; mesonotum medially carinate in apical half, laterally carinate throughout. Post-tibiae unispinose.

Tegmina about three times as long as wide at widest part, anterior margin slightly convex, apical margin evenly rounded; Sc+R+M forking about one-sixth from base, Sc+R forking about one-third from base, M forking at level of nodal line, Cu₁ forking two-fifths from base; Sc forked at level of union of claval veins, with its distal branch bifurcate near margin, R with two branches at margin, M with three, Cu_a and Cu_b each simple. Wings with Sc simple, R and M each two-branched.

Seventh abdominal sternite of female with posterior margin produced caudad.

Type species, *Katbergella griseobrunnea* sp. n.

***Katbergella griseobrunnea* sp. n.**

(FIG. 15)

Female: length, 5.5 mm.; tegmen, 7.0 mm.

Tegmina with a narrow but distinct costal area.

Pale testaceous, lightly marked fuscous; a series of four spots on lateral margins of frons and a broad band across frontoclypeal suture ochraceous; a spot below eyes, and also below antennae, and lateral fields of pronotum fuscous. Tegmina pallid, translucent, slightly sprinkled fuscous, with a distinct rounded spot in costal cell near Sc+R+M stalk. Wings hyaline, powdered greyish-white.

Pregenital sternite with a triangular medioventral process, as long as broad across base. Anal style short, not exceeding apical margin of segment.

Described from a single female taken at 4,000 ft., Katberg, E. Cape Province, South Africa, by R. E. Turner (1-12 March, 1933) Brit. Mus. 1933-198. *Katbergella* is distinguished by its elongate frons and by its tegminal venation, which is almost Plectoderine in its simplicity.

MABIRA gen. n.

Vertex between eyes three times as wide as long in middle line, anterior margin carinate, broadly convex, lateral margins carinate, converging anteriorly to merge into anterior carina, posterior margin excavate, disk somewhat depressed, median carina distinct; frons longer than broad, lateral margins shallowly convex, carinate, median carina distinct, antennae with second segment short, a little longer than broad. Pronotum longer than vertex in middle line, medially and laterally carinate, two more or less complete carinae between eye and tegula; mesonotum tricarinate. Post-tibiae unispinose.

Tegmina 2.6 times as long as wide at widest part, anterior margin slightly convex, apical margin deeply rounded. Sc+R+M forking one-seventh from base, Sc+R forking about one-third from base, M forking at level of nodal line, Cu forking two-fifths from base just distad of union of claval veins, Sc with supernumerary branches at margin, R two-branched at apex, M regular, with four branches, Cu simple, Cu_{1b} with two branches.

Seventh abdominal sternite of female with posterior margin transverse. Anal style much exceeding apical margin of segment.

Type species, *Mabira pallida* sp. n.

Mabira pallida sp. n.

(FIG. 16)

Female: length, 6.3 mm.; tegmen, 8.0 mm.

Stramineous; genae and disk of vertex slightly infusate. Tegmina greyish-white, a spot in cell R behind fork Sc+R, a spot in subapical cells R₁+2, M₁, and M₂, a spot just distad of apex of clavus and a few faint chevron-like bars across veins of Cu in corium fuscous-piceous. Wings pallid, veins testaceous. Insect powdered pallid.

Anal segment of female short, tubular. Anal style elongate-triangular, distally decurved. Seventh abdominal sternite posteriorly transverse. First valvulae of ovipositor with ventral lobes short, triangular, as long as broad at base. Third

valvulae subquadrate, apical margin convex-truncate. Bursa copulatrix furnished with an L-shaped sclerite, pointed at one extremity.

Described from a single female taken at Mabira, Uganda, by C. C. Gowdey (18 July, 1911) Brit. Mus. 1948-549. The genus is readily distinguished by the tegminal venation.

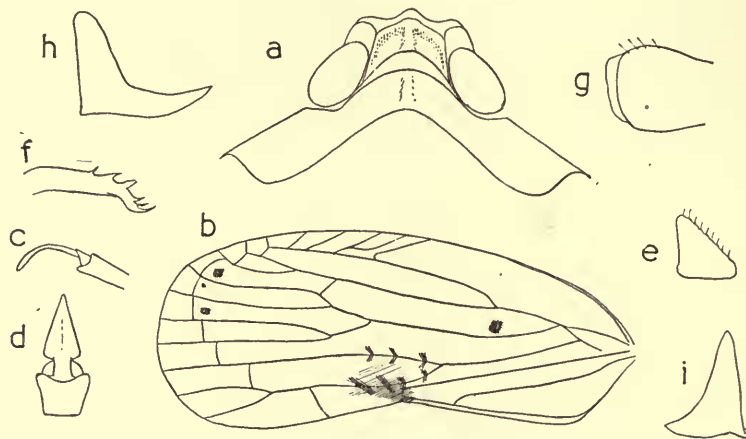


FIG. 16. *Mabira pallida*, gen. et sp. n.

a, vertex and pronotum; b, tegmen; c, anal segment of female, side view; d, same, dorsal view; e, ventral lobe of first valvula; f, first valvula in profile, ventral lobe removed; g, third valvula in profile; h, i, two views of sclerite in bursa copulatrix.

PARELIDIPTERA gen. n.

Vertex at base about twice as wide as long in middle line, all margins and middle line stoutly carinate, disk depressed on each side of middle line, anterior margin sub-angulately transverse, lateral margins slightly converging anteriorly, posterior margin shallowly excavate, occiput long, vertical; frons elongate, fully twice as long as broad, lateral margins carinate, diverging to below level of antennae, thence incurved to suture; median carina percurrent to distal part of clypeus; antennae projecting beyond eyes, second segment slightly longer than broad. Pronotum longer than vertex, disk large, laterally carinate, median carina feeble or obsolete, one carina at lateral margin between eye and tegula; mesonotum with carinae obsolete or absent.

Tegmina about 2.4 times as long as wide, anterior margin slightly convex, strongly so near base, apical margin deeply and evenly rounded, Sc+R+M forking near basal sixth, Sc+R forking about one-third from base, M forking at nodal line, Cu1 forking near middle of tegmen basad of apex of clavus; Sc, omitting stigmal branch, four-branched distally, R four-branched, M five-branched, Cu1a three-branched, Cu1b two-branched. Wings with R two-branched, M three-branched, Cu1a simple.

Anal style large, almost circular, setose. Bursa copulatrix with a simple sclerotized plate dorsally.

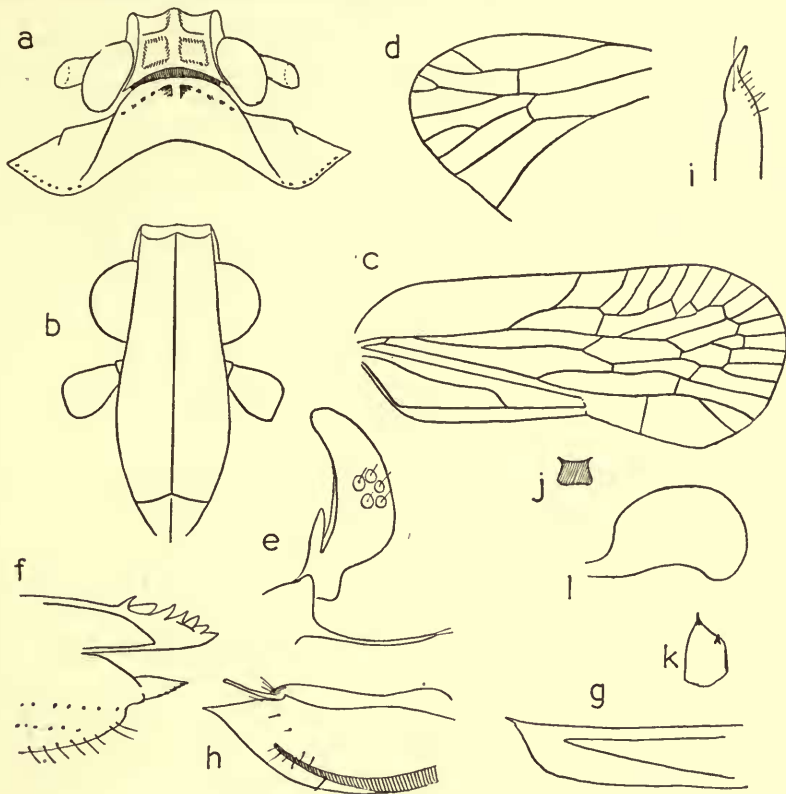
Type species, *Parelidiptera teres* sp. n.

***Parelidiptera teres* sp. n.**

(FIG. 17)

Female: length, 7.0 mm.; tegmen, 9.7 mm.

Vertex slightly declivous anteriorly, frons in middle line 2.25 times as long as broad, greatest width about one-quarter from apex.

FIG. 17. *Parelidiptera teres*: gen. et sp. n.

a, vertex and pronotum; b, frons; c, tegmen; d, apex of wing; e, anal segment and style, lateral view with most of setae on latter omitted; f, first valvula; g, second valvula; h, third valvula (all valvulae in lateral view); i, ventral lobe of first valvula; j, subvaginal plate, posterior view; k, sclerite in bursa copulatrix; l, bursa copulatrix.

Ashy-grey, minutely and sparsely speckled fuscous; abdomen testaceous, powdered white. Tegmina ashy, minutely speckled fuscous, a dark area in middle of costal cell and an oblique area extending between margin at stigma and R, veins pallid. Wings translucent, powdered white.

Anal segment produced into two long cylindrical processes at lateral ventral angles, each process bisetose at apex, anal style large, subcircular in outline, thick, beset with stout setae. Ovipositor with first valvulae bilobed, dorsal lobe sclerotized distally and armed on upper margin near apex with seven subequal teeth, ventral lobe broad, setose, abruptly rounded distally, middle of distal margin produced in a small

triangular lobe; second valvulae in profile with dorsal and ventral margins straight, parallel, the ventral curving upward distally to form a point at apex; third valvulae broad with dorsal margin straight or nearly so, ventral margin convex, apex pointed, a sclerotized rod arising on inner face near base and lying close to ventral margin. Subvaginal plate very small, quadrate. Bursa copulatrix ovoid, armed in middle of dorsal surface with a small ovate sclerotized plate bearing two short teeth.

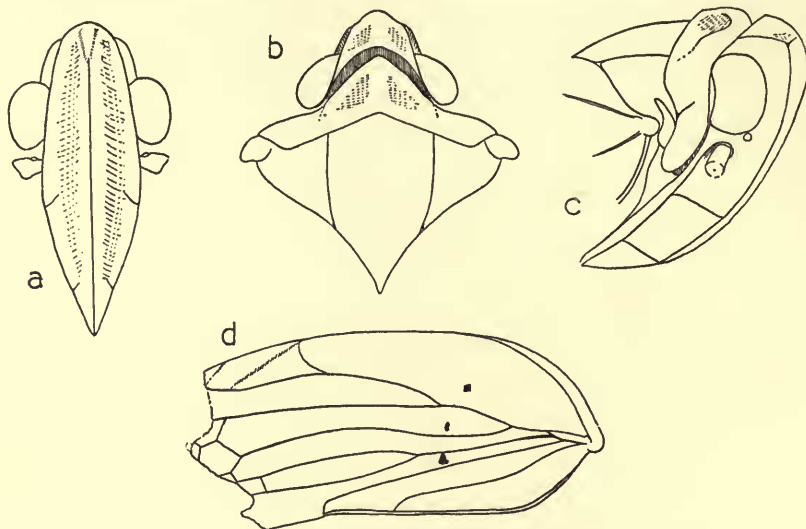


FIG. 18. *Uniptera ampliata* Ball.

a, frons and clypeus; b, vertex, pronotum and mesonotum; c, head in profile; d, tegmen.

Described from one female taken at Paraná, Brazil, by E. Dukinfield Jones, Brit. Mus. 1907-12. Type in collection of Brit. Mus. (N.H.).

UNIPTERA Ball

1933. *Uniptera* Ball, *Pan-Pacific Ent.* 9: 133. Orthotype, *Uniptera ampliata* Ball.

Uniptera ampliata Ball

(FIG. 18)

1933. *Uniptera ampliata* Ball, loc. cit.: 134.

The figures have been kindly prepared by Dr. Paul Oman from the holotype in the U.S. National Museum. As far as the writer is aware *Uniptera* is the only representative of the tribe in the Nearctic Pacific coast area.

TRIBE BREDDINIOLINI

Vertex transverse, subquadrate, frons with lateral carinae produced anteriorly, clypeus carinate laterally and medially, rostrum with subapical segment longer than apical, antennae exposed dorsally, not sunk in a pit, second segment ovoid, ocelli not touching eyes, eyes emarginate posteriorly. Pronotum relatively long at sides with

lateral carinae enclosing a circular fovea; mesonotum longer than vertex and pronotum combined, obsoletely tricarinate. Pro-tibiae shorter than femora with trochanters, post-tibiae with three spines. Tegmina relatively broad, clavus terminating distad of middle, Sc and R not forming a common stalk.

The species of this tribe known to the writer are almost wholly piceous. One genus is known from West Africa and one from Fiji.

KEY TO GENERA OF BREDDINIOLINI

- 1 (2) Frons medially carinate, lateral margins ampliate just before clypeus, lateral carinae moderately elevated, lateral carinae of clypeus converging distally at 20° ; vertex with lateral margins distinctly converging anteriorly.

Breddiniola Muir

- 2 (1) Frons smooth medially, lateral margins parallel throughout, lateral carinae strongly raised, subfoliate, lateral carinae of clypeus short, convex, converging distally at an angle of 60° ; vertex with lateral margins not or scarcely converging anteriorly *Breddiniolella* gen. nov.

BREDDINIOLA Muir

1934. *Breddiniola* Muir, *Ann. Mag. nat. Hist.* (10) **14**:581. Orthotype, *Breddiniola tangensis* Muir, 1934, loc. cit.

Breddiniola collaris (Haglund) comb. n.

1899. *Achilus?* *collaris* Haglund, *Öfvers. Vetensk. Akad. Förh. Stockh.* **56**:63.

The description shows this species to be close to *tangensis* Muir, and as both occur in West Africa they may prove to be conspecific.

BREDDINIOLELLA gen. n.

Vertex with anterior margin transverse, lateral margins not or scarcely converging anteriorly, median carina obsolete, indicated only at apex, frons devoid of median carina, lateral carinae foliate anteriorly, clypeus carinate laterally and medially, rostrum with subapical segment distinctly longer than apical, antennae exposed dorsally, second segment ovoid, ocelli not touching margin of eyes; pronotum relatively long laterally, ventral margin of lateral fields angulate and oblique; mesonotum longer than vertex and pronotum together, obsoletely tricarinate; pro-tibiae shorter than femora and trochanters combined, post-tibiae with three spines. Tegmina with Cu₁ fork basad of Sc+R fork.

Type species, *Breddiniolella leveri* sp. n.

Breddiniolella leveri sp. n.

(FIG. 19)

Female: length, 4.0 mm.; tegmen, 6.0 mm.

Piceous; apex of clypeus, sides of frons, genae, a line on disk of vertex, a spot on lateral fields of pronotum testaceous-brown. Tegmina sooty-black, costal cell subhyaline.

Anal segment in dorsal view subovate, deeply and narrowly excavate medially at apex, anal style narrow, rounded at apex, not or scarcely exceeding lateral lobes of anal segment. Ovipositor with first valvulae narrowly rhomboidal in profile, furnished at apex with three short closely set teeth in an oblique row, and three more widely separated teeth along dorsal margin; second valvulae horizontal, each elongate, tapering distally with a fringe of setae on outer side and a small setose lobe at base;

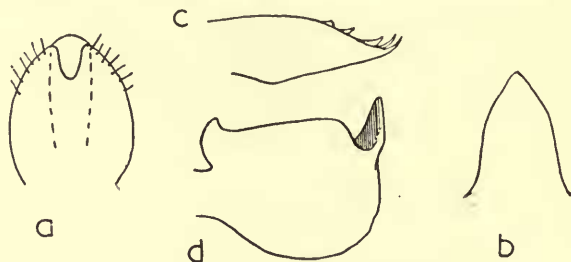


FIG. 19. *Breddiniolella leveri*, gen. et sp. n.

a, anal segment of female, dorsal view; b, process of pregenital sternite; c, first valvula, lateral view; d, third valvula, lateral view.

third valvulae subovate in profile with a broad somewhat falcate lobe on dorsal margin at base and a triangular lobe at apex. Hind margin of seventh abdominal sternite produced in a triangular lobe 1.5 times as long as broad across base.

Described from one female taken under bark by R. A. Lever, Nadala R., Viti Levu, Fiji (7 July 1944), Brit. Mus. 1948-549.

This species, which is dedicated to the collector, is the only member of the tribe known outside Africa.

TRIBE ACHILINI

Vertex not or scarcely two-thirds width of pronotum, pronotum comparatively large, disk elevated, lateral marginal carinae variable, sometimes obsolete, never enclosing a fovea nor comprising two complete carinae which both lie straight and parallel between each eye and tegula. Tegmina large, shallowly tectiform, venation regular throughout, apical branches numerous, Sc and R united in a common stalk basally, no callus developed in M.

With the exception of the neotropical genera *Nelidia* Stål and *Flatachilus* (described below) all members of this tribe are found in the Old World from Africa to Australia. The Australian genus *Bundwica* is placed in this tribe pending a critical examination of the type species.

KEY TO GENERA OF ACHILINI

- 1 (2) Vertex with disk not depressed or only anterolaterally so, second segment of antennae projecting beyond eyes, carina between eye and tegula obsolete or absent, apical margin of tegmina convex 11
- 2 (1) Vertex with disk depressed, anterior margin distinctly carinate, antennae not projecting beyond eyes, one or two strong carinae between eye and tegula 3

- 3 (4) Margins of frons and clypeus not foliate, one carina between eye and tegula 5
- 4 (3) Margins of frons foliate, if not, then vertex medially carinate throughout, two carinae on each side between eye and tegula 7
- 5 (6) Clypeus in profile forming a very shallow curve with frons, basal width of vertex not twice length in middle, ventral margin of lateral fields of pronotum smoothly rounded, tegulae large, carinate *Faventilla* Metc.
- 6 (5) Clypeus in profile forming a strong convexity with frons, interrupted by a notch at suture, basal width of vertex more than twice length in middle, ventral margin of lateral field of pronotum oblique, meeting sides in an acute curve, tegulae minute, ecarinate *Booneta* Dist.
- 7 (8) Vertex rounding into frons, apical margin obsolete, median carina elevated and percurrent through vertex and frons, margins of frons and clypeus not foliate *Nelidia* Stål.
- 8 (7) Vertex devoid of median carina, margins of frons and clypeus strongly foliate 9
- 9 (10) Vertex more than twice as broad as long, with anterior margin transverse, posterior margin not deeply excavate, frons at widest part not much wider than at base (1.2:1) *Catonidia* Uhl.
- 10 (9) Vertex usually not more than twice as broad as long, with anterior margin angulate at middle, posterior margin deeply excavate, frons at widest part twice width at base *Aneipo* Kirk.
- 11 (12) Vertex with disk not depressed, anterior marginal carina obsolete, second segment of antennae projecting markedly beyond eyes, apical margin of tegmina rounded *Achilus* Kirby
- 12 (11) Vertex with disk depressed anterolaterally, anteriorly carinate, second segment of antennae scarcely surpassing eyes 13
- 13 (14) Apical margin of tegmina subtruncate *Flatachilus* gen. n.
- 14 (13) Apical margin of tegmina rounded *Bunduica* Jacobi.

Achilus Kirby

1818. *Achilus* Kirby, *Trans. Linn. soc. Lond. (Zool.)* 12:474. Haplotype, *Achilus flammeus* Kirby, loc. cit.: 475.

1843. *Achillus* Amyot and Serville, *Hist. nat. Ins. Hémiptères*: 524.

This genus at present contains only the type species. *A. dilutus* Stål and *A. dulcis* Gerst. belong to the cyphoceratopine Tropiduchidae, *A. conspersinervis* Stål was made by him the type of *Myconus*, *A. collaris* Haglund is a *Breddiniola*, while *A. costalis* Haglund is evidently one of the Plectoderini, probably allied to *Lanuvnia*.

Faventilla Metcalf

(FIG. 20)

1948. *Faventilla* Metcalf, *Smith Coll. Gen. Cat. Hem. Fasc. 4*, pt. 10: 60.

1866. *Faventia* Stål, *Hem. Afr.* 4:181. Logotype, *Cixius pustulatus* Wlk. 1857 *J. Linn. soc. Lond. (Zool.)* 1:87.

Cixius diffinis Walker and *C. guttifer* Walker are members of this genus.

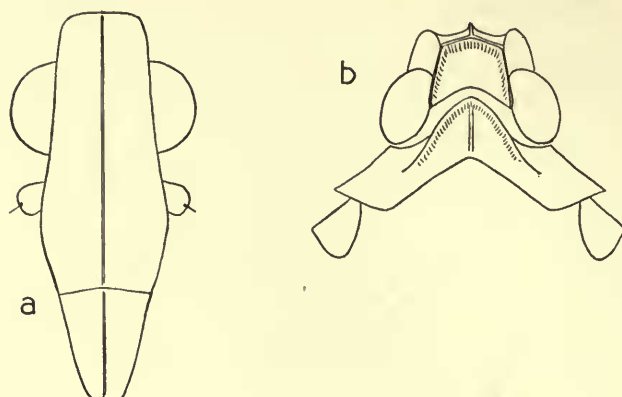


FIG. 20. *Faventilla pustulata* (Walker).
a frons; b, vertex and pronotum.

Booneta Distant

1907. *Booneta* Distant, *Ann. Mag. nat. Hist.* (7) **19**: 291. Orthotype, *Cixius ferrugineus* Walker 1870 *J. Linn. soc. Lond. (Zool.)* **10**: 104.

Cixius caliginosus Walker and *C. luridus* Walker are congeneric, the former being synonymous with the type species.

Nelidia Stål

(FIG. 21)

1862. *Nelidia* Stål, *Bidrag Rio Janeiro-trakt. Hemipt. 2, K. svenska Vetensk. Akad. Handl.* **3**(6): 66. Haplotype, *Phrygia ancora* Stål. 1862 loc. cit.: 6.

Figures are given of a species in the British Museum near *N. ancora*. The tegminal venation is very similar to that of *Aneipo*.

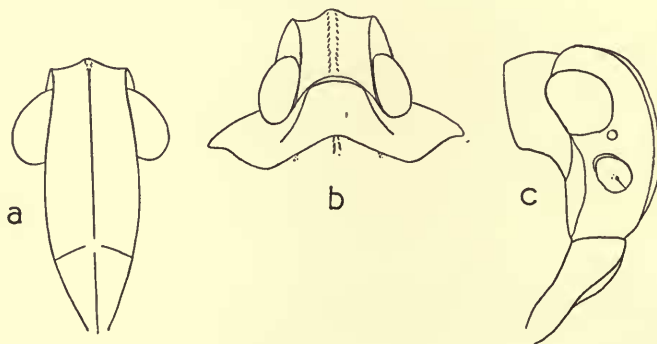


FIG. 21. *Nelidia* sp. near *ancora* Stål.
a, frons and clypeus; b, vertex and pronotum; c, head in profile.

FLATACHILUS gen. n.

Vertex approximately as wide at apex as long at sides, anterior margin subtransverse, very obtusely angulate at middle, lateral margins slightly converging apically, posterior margin deeply excavate, disk depressed except for a prominent semicircular callus medially between middle and base, frons curved in profile, twice as long in middle line as broad, medially carinate, disk depressed, lateral margins obliquely foliate, clypeus convex, medially carinate. Pronotum large, disk elevated, anteriorly strongly convex, median carina absent, lateral carinae strongly sinuate, reaching hind margin near tegulae; mesonotum large, carinae obsolete or weak. Post-tibiae with a single spine just distad of middle. Abdomen markedly depressed. Tegmina large, tectiform, widest at apex, anterior margin slightly convex, apical margin subtruncate, sutural margin almost straight, base of costal margin reflected upward, costal cell wider than clavus, Sc+R+M forking about one-sixth from base, Sc+R forking about one-third from base, M forked near middle of tegmen, Cu forked at about same level as Sc+R, Sc giving off six oblique veins to costa before node, one at node, and five to margin beyond it, R forked near apex with two branches at margin, M with seven branches at margin, Cu_a with two, Cu_{rb} with two; clavus terminating slightly distad of middle of tegmen, no distinct nodal line, apical transverse line close to margin, apical areoles of R and M little broader than long. Wings with Sc simple, R with two branches, M with three, Cu₁ with four.

Anal segment of female elongate-ovate, broadest near base; setose; a pair of short setose appendages ventrally on tenth segment. Ovipositor with third valvulae subquadrate with dorsal and ventral margins convex, a small membranous lobe at apex. Bursa copulatrix with a single multidentate sclerotized plate.

Type species, *Poeciloptera diffinis* Walker.

Flatachilus diffinis (Walker) comb. n.

(FIG. 22)

1858. *Poeciloptera diffinis* Walker, *Insecta Saundersiana*, Hom.: 57.

White. Tegmina white marked with about eleven small black spots on corium and about seven in membrane close to margin.

Ovipositor with first valvulae with dorsal limb sclerotized, bearing five teeth, the apical tooth longest, ventral limb membranous, deeply bifid, each ramus deeply cleft into two slender lobes, a slight sclerotization in basal portion of limb, third valvulae with membranous apical lobe vertical, elongate-triangular. Bursa copulatrix ornamented with a system of thin-walled rings closely grouped, a single circular sclerotized plate, domed on haemocoelic surface, dentate on luminal surface, a few anterior teeth oblique, much longer than remainder.

Redescribed from Walker's type and from one female taken by A. M. Moss, Para, Brazil (Rothschild Bequest, Brit. Mus. 1939-41). The general facies of the head and thorax is that of the Achilini rather than of the Elidipterini, while the venation, though reminiscent of that of *Myconus*, is also of Achiline pattern.

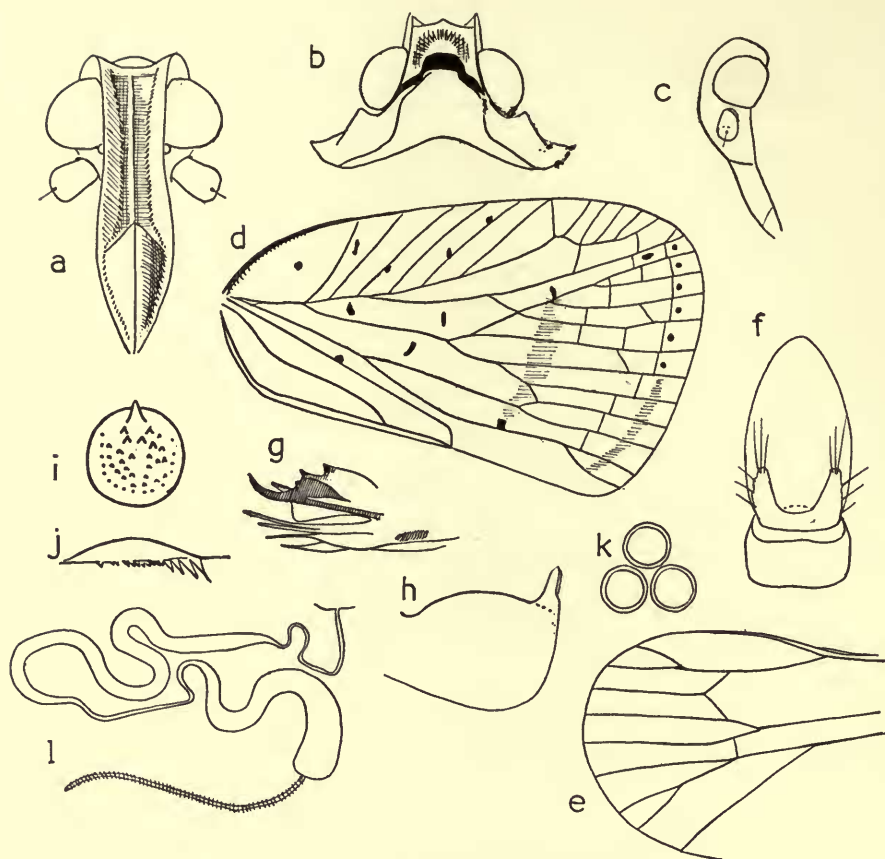


FIG. 22. *Flatachilus diffinis* (Walker).

a, frons and clypeus; *b*, vertex and pronotum; *c*, head in profile; *d*, tegmen; *e*, apex of wing; *f*, anal segment of female, ventral view; *g*, first valvula, lateral view; *h*, third valvula, lateral view; *i*, *j*, ventral and lateral views of sclerite in bursa copulatrix; *k*, ornamentation of bursa copulatrix; *l*, spermatheca (semi-diagrammatic).

Catonidia Uhler

1896. *Catonidia* Uhler, *Proc. U.S. nat. Mus.* **19**:281. Haplotype, *Catonidia sobrina* Uhler, *Proc. U.S. nat. Mus.* **19**:282.

1907. *Ouwea* Distant, *Ann. Mag. nat. Hist.* (7) **19**:292; syn. n.

1928. *Spendon* Jacobi, *Ark. Zool.* **19A**, no. 28; 26; syn. n.

The writer has examined the type of *Ouwea doddi* Dist. and was unable to separate it from *C. sobrina* Uhler on the external characters used. The two are undoubtedly congeneric. *Spendon* Jacobi (orthotype *Spendon flavonotatus* Jacobi) is also congeneric, and it is probable that it is conspecific with *doddi* Distant. The last two genera must accordingly be suppressed as synonyms of *Catonidia*.

Aneipo Kirkaldy

1906. *Aneipo* Kirkaldy, *Bull. Hawaii. Sug. Ass. ent. Ser.* **1** (9): 425. Haplotype, *Aneipo diva* Kirk. *ibid.*: 425.

1907. *Tudea* Distant, *Ann. Mag. nat. Hist.* (7) **19**: 290. Orthotype, *Tudea picturata* Dist. *ibid.*: 290.

The striking colour pattern of members of this genus is unique in Achilidae. A transition from regular to irregular venation in the tegmina occurs between species in this genus.

BUNDUICA Jacobi

1909. *Bunduica* Jacobi, Michaelsen, and Hartmeyer, in *Fauna S.W. Austral. Homopt., Ergebnisse Hamburg. Süd-west-australischen Forschungsreise 1905*, **2**:345. Haplotype, *Bunduica rubrovenosa* Jac.

Bunduica rubrovenosa Jacobi

(FIG. 23)

1909. *Bunduica rubrovenosa* Jacobi, *loc. cit.*: 345.

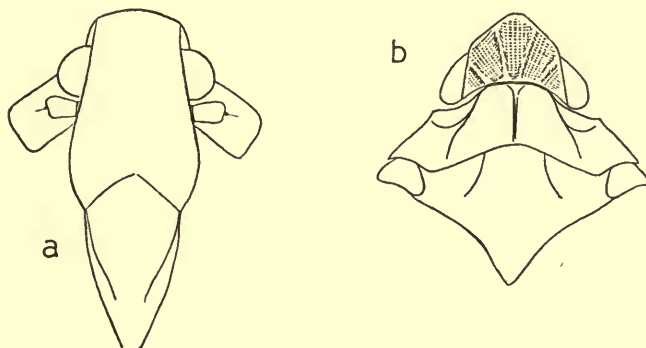


FIG. 23. *Bunduica rubrovenosa* Jacobi.

a, frons and clypeus; b, vertex, pronotum, and mesonotum (after Jacobi).

The figures are after Jacobi. This genus appears to be isolated, and without examination of the type species it cannot be placed, even tribally, with confidence.

TRIBE APATESONINI

Vertex transverse, as pronotum with anterior margin straight or concave, frons depressed, medially ecarinate or median carina obsolete or absent, lateral margins foliate, continuing along clypeus almost to meet at apex; pronotum short, overlapped by eyes, mesonotum with disk clearly separated from sides by lateral carinae. Post-tibiae with one spine at middle. Tegmina tectiform, apically sinuate or subtruncate, Sc usually with a long anterior branch obliquely across costal cell, which is broad.

KEY TO GENERA OF APATESONINI

- 1 (2) Vertex not medially carinate, anterior margin transverse or very shallowly convex, length of vertex and pronotum together one-quarter length of mesonotum, tegmina with costa remote from margin near base
Sevia Stål
- 2 (1) Vertex medially carinate, anterior margin distinctly convex or concave, length of vertex and pronotum together not as above, tegmina with costa along anterior margin basally 3
- 3 (4) Vertex much shorter in middle line than at sides, anterior margin very shallowly concave, frons with median carina obsolete, lateral carinae foliate or prominent, clypeus not strongly reflexed below thorax 5
- 4 (3) Vertex longer in middle line than at sides, anterior margin subrectangularly convex, frons with median carina more prominent than lateral carinae, clypeus strongly reflexed below thorax; combined length of vertex and pronotum about one-half that of mesonotum *Achilla* Hagl.
- 5 (6) Vertex almost completely covering pronotum laterally, tegmina with apical margin excavate in M *Apateson* Fowler
- 6 (5) Vertex not nearly covering pronotum laterally, tegmina with apical margin entire *Ilva* Stål

SEVIA Stål

1862. *Diacira* Stål, Bidrag Rio Janeiro-trakt. Hemipt. **2**, K. svenska Vetensk. Akad. Handl. **3** (6):3. (nom. praeocc.).
1866. *Sevia* Stål, Hem. Afr. **4**:181. Logotype *Diacira moerens* Stål.
1938. *Ateson* Metcalf, Bull. Mus. comp. Zool. Harv. **82** (5):369. Orthotype, *A. marmoratum* Metc. (= *S. bicarinata* F.) ibid. 370.

Sevia moerens Stål

FIG. 24

1862. *Sevia moerens* Stål, loc. cit.:3.

Female: length, 8.0 mm.; tegmina, 13.0 mm.

Vertex devoid of median carina, frons medially carinate at base, clypeus broadly raised along middle line, lateral carinae of frons and clypeus foliate meeting at apex of clypeus, rostrum with subapical segment longer than apical, antennae exposed dorsally with second segment ovoid, ocelli not touching margin of eyes, pronotum with ventral margin of lateral fields angulate and oblique; mesonotum distinctly tricarinate, about four times as long as combined length of vertex and pronotum. Pro-tibiae longer than pro-femora and trochanters, post-tibiae with a single spine at middle. Tegmina with clavus terminating at middle or very slightly distad of middle. Cur forking distad of Sc+R fork.

The above summary of generic characters and the figures are based on Stål's type.

The type species and *intermaculata* Stål (Fig. 25), a closely allied species, appear to have been rarely collected. On external characters it is not possible to separate

S. bicarinata F. (*Flata*) from *Ateson marmoratum* Metcalf and it is considered that the latter must fall into synonymy with the Fabrician species. The type species and other species of *Ateson* seen by the writer (which include all the described and one or two

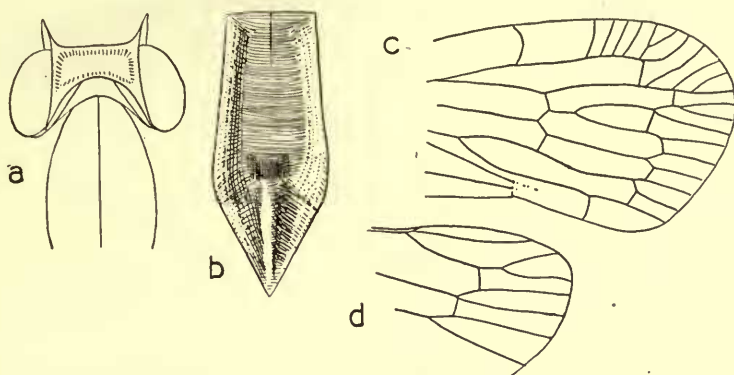


FIG. 24. *Sevia moerens* Stål.

a, vertex and pronotum; b, frons and clypeus; c, apex of tegmen; d, apex of wing

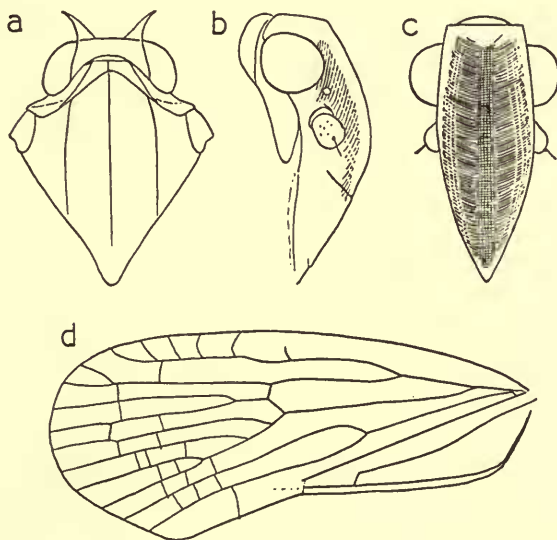


FIG. 25. *Sevia intermaculata* Stål.

a, vertex, pronotum, and mesonotum; b, head in profile; c, frons and clypeus; d, tegmen.

undescribed species) agree with the type species of *Sevia* in all significant external characters except size. Close comparison of the genitalia of both sexes between *S. moerens* and *S. bicarinata* may possibly reveal characters on which *Sevia* can naturally be divided, but on present evidence *Ateson* cannot be kept apart, and is here regarded as a subgenus which includes the smaller species.

ACHILLA Haglund

1899. *Achilla* Haglund, *Öfvers. Vetensk. Akad. Förh. Stockh.* **56**:62. Haplotype, *Achilla marginatifrons* Haglund *ibid.*:63.

The characters of the type species are somewhat divergent from those of the remainder of the tribe. Anterior margin of vertex obscure, a strong median carina from base of vertex to apex of clypeus, clypeus short, antennae small, pronotum short. Tegmina with M_1 , M_{1a} , M_2 , M_3+4 .

APATESON Fowler

1900. *Apateson* Fowler, *Biol. cent. Amer. Rhynch.-Hom.* **1**:70, pl. 8, figs. 15, a. Haplotype, *Apateson albomaculatum* Fowler *ibid.*

This monotypic genus appears to be confined to Central America.

ILVA Stål

1866. *Ilva* Stål, *Hem. Afr.* **4**:183. Haplotype, *Ilva nigrosignata* Stål.

***Ilva nigrosignata* Stål**

(FIG. 26)

1866. *Ilva nigrosignata* Stål, *loc. cit.*:183.

Length, 6.5 mm.; tegmen, 10.0 mm.

Vertex more than three times as broad as long, with median carina weak, most distinct at base, frons medially carinate, lateral carinae obliquely foliate, clypeus

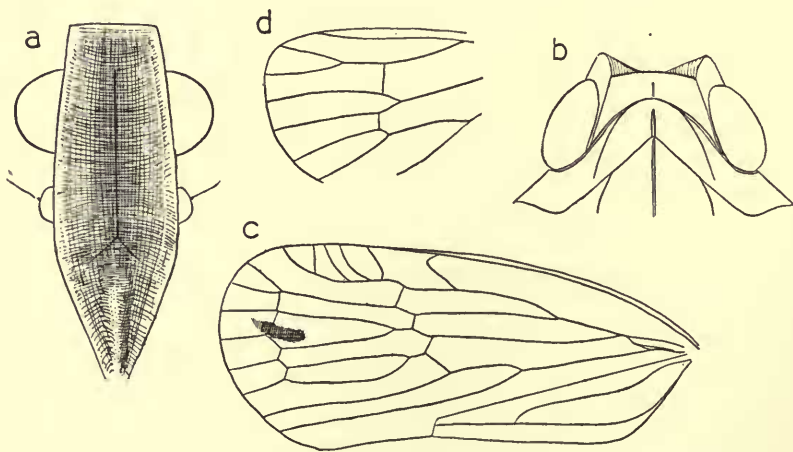


FIG. 26. *Ilva nigrosignata* Stål.

a, frons and clypeus; b, vertex and pronotum; c, tegmen; d, apex of wing.

broadly raised along middle line, lateral margins obliquely foliate, rostrum with subapical segment longer than apical (1.7:1), antennae exposed dorsally, second segment subglobose, ocelli not touching margin of eyes, eyes not covering pronotum

laterally; pronotum moderately short, ventral margins of lateral fields angulate and oblique; mesonotum longer than vertex and pronotum together, distinctly tricarinate. Pro-tibiae distinctly longer than femora and trochanters combined, post-tibiae with a single spine distad of middle. Tegmina with apical margin shallowly rounded, clavus terminating distad of middle, Sc, R, and M scarcely forming a common stalk basally, Sc+R and Cur forked basad of middle of tegmen, Cur forking slightly distad of Sc+R fork.

The redescription and figures are based on Stål's type.

The type species is known only from the Cameroons.

TRIBE PLECTODERINI

Vertex at least two-thirds as wide as pronotum, anterior margin convex or angularly produced at middle, tegmina shallowly rounded over dorsum and with membranous areas overlapping when folded, apical margin strongly convex, venation regular, Sc with anterior branch short, sometimes recurved, usually six subapical and eight or nine apical areoles; post-tibiae unispinose.

The members of this tribe are small and for the most part coloured in shades of brown.

KEY TO GENERA OF PLECTODERINI

- I (2) Width of vertex measured at base of middle line at least twice length along middle; posterior margin not deeply excavate; vertex declivous or base of frons visible from above; frons relatively broad throughout; no areolets laterally between vertex and frons 3
- 2 (1) Width of vertex not twice length along middle; latero-apical areolets present or absent 39
- 3 (4) Vertex with apical margin broadly and more or less evenly rounded 5
- 4 (3) Vertex with anterior margin truncate or forming an obtuse angle at apex II
- 5 (6) Vertex distinctly depressed just inside anterior margin, frons with two pale transverse bands *Pyrrhyllis* Kirk.
- 6 (5) Vertex not distinctly depressed just inside anterior margin 7
- 7 (8) Tegmina with vein Curb deeply curved mesad before transverse line, some veins in part foliately raised *Rupex* gen. n.
- 8 (7) Tegmina not as above, veins not foliately raised 9
- 9 (10) Frons strongly convex in profile, distinctly broader near level of antennae than at base; median carina obsolete basally; pronotum very short *Plectoderes* Spin.
- 10 (9) Frons shallowly convex in profile, scarcely broader near level of antennae than at base, median carina present basally, pronotum of moderate length *Caffropyrrhyllis* gen. n.¹
- II (12) Vertex about six times as broad as long in middle; tegmina with parts of M, Cu, and claval veins foliately raised *Tropiphlepsia* Muir

¹ The Chilean *Calerda* Signoret is separated from this genus by having the apical areoles of M not more than twice as long as broad.

- 12 (11) Vertex and tegmina not as above 13
- 13 (14) Frons with disk markedly impressed in apical third, with a transverse pallid band *Aristyllis* Kirk.
- 14 (13) Frons with disk not depressed, with two pallid transverse bands or none, rarely one 15
- 15 (16) Tegmina with Sc and R together with only three or four veins at margin, M1+2 forking at apical transverse line. Wings with R simple *Plectoderoides* Mats.
- 16 (15) Venation not as above 17
- 17 (18) Frons with two pallid transverse bands *Benella* Kirk.
- 18 (17) Frons devoid of such bands 19
- 19 (20) Pronotum not greatly constricted behind eyes, and more or less carinate between eye and tegula 21
- 20 (19) Pronotum greatly narrowed behind eyes, not carinate between eye and tegula 25
- 21 (22) Subcosta in tegmina with nine branches at margin; frontal and clypeal margins raised in a single unbroken curve, rostrum scarcely reaching post-trochanters *Kosalya* Dist.
- 22 (21) Subcosta with less than nine branches at margin, frontal and clypeal margins not as above 23
- 23 (24) Median carina of pronotum longer than that of vertex, lateral carinae of pronotal disk straight *Phypia* Stål
- 24 (23) Median carina of pronotum not longer than that of vertex, lateral carinae of pronotal disk concave *Kawanda* gen. n.
- 25 (26) Vertex not more than twice as broad as long in middle, apex of clavus not distad of middle of tegmen *Amblycratus* Uhl.
- 26 (25) Vertex more than twice as broad as long in middle, apex of clavus slightly exceeding middle of tegmen 27
- 27 (28) Width of frons at base exceeding three-quarters of width at its widest part 29
- 28 (27) Basal width of frons not three-quarters of its greatest width 35
- 29 (30) Frons longer than broad, 1.6:1 31
- 30 (29) Frons relatively shorter 33
- 31 (32) A transverse callus between frons and vertex; lateral carinae of pronotal disk not attaining hind margin *Agandecca*. White
- 32 (31) No such callus present, lateral carinae of pronotal disk attaining hind margin *Plectoringa* gen. n.
- 33 (34) Frons about 1.1 times as long as broad *Hemiplectoderes* gen. n.
- 34 (33) Frons relatively longer, length to width about 1.4:1 *Rhinocolura* gen. n.
- 35 (36) Lateral discal carinae of pronotum not reaching hind margin *Abas* gen. n.
- 36 (35) Lateral discal carinae of pronotum reaching hind margin 37
- 37 (38) Lateral margins of frons sinuate; median carina of pronotum half length of lateral discal carinae; mesonotum posteriorly depressed *Paragandecca* gen. n.
- 38 (37) Lateral margins of frons not sinuate, straight at base then convex; median

- carina of pronotum less than a third of length of lateral discal carinae;
mesonotum not depressed posteriorly *Prosagandecca* gen. n.
- 39 (40) Vertex devoid of a carina across apex, or with median carina prominent and
apical transverse carina obsolete 41
- 40 (39) Vertex with one or more distinct carinae at apex 53
- 41 (42) Vertex four times as long as wide at base, median carina prominent, sub-
foliate *Chroneba* Stål
- 42 (41) Vertex not as above 43
- 43 (44) Lateral margins of vertex slightly concave, vertex about as wide at apex
as at base 45
- 44 (43) Vertex not as above; tegmina with M_1+2 forked before distal row of
transverse veins 51
- 45 (46) Width of clypeus at base exceeding width of frons at base 47
- 46 (45) Width of clypeus at base equal to width of frons at base 49
- 47 (48) Lateral discal carinae of pronotum curved laterad, not reaching hind margin
Tangina Mel.
- 48 (47) Lateral discal carinae of pronotum short, reaching hind margin
Paraclusivius gen. n.
- 49 (50) Vertex as long as broad across base *Clusivius* Dist.
- 50 (49) Vertex 1.3 times as broad across base as long in middle line *Phrygia* Stål
- 51 (52) Vertex distinctly longer than broad; frontoclypeal suture deeply impressed;
rostrum attaining post-trochanters, pronotum punctate on each side of
middle line; post-tibial spine at middle *Parakosalya* Dist.
- 52 (51) Vertex not distinctly longer than broad; frontoclypeal suture not at all
impressed; rostrum scarcely reaching to post-trochanters; pronotum not
punctate on each side of middle line; post-tibial spine basad of middle
Akotropis Mats.
- 53 (54) Vertex with a single distinct carina across apex 55
- 54 (53) Vertex with two or more transverse carinae at apex, usually enclosing a
more or less distinct triangular facet on each side at base of frons; rarely
a callus in place of such facets 99
- 55 (56) Vertex longer in middle line than broad at its base by at least 1.5:1 57
- 56 (55) Vertex relatively shorter 61
- 57 (58) Pronotum with supernumerary carinae enclosing areolets on each side out-
side disk; tegmina with two or three callosities in apical cells of Sc and R
59
- 58 (57) Pronotum devoid of such carinae and areolets; tegmina without callosities
in apical cells *Callichlamys* Kirk.
- 59 (60) Vertex flat, 1.5 times as long as greatest width; a horizontal carina between
eye and lateral margin of frons *Koloptera* Metc.
- 60 (59) Vertex hollowed out, fully twice as long as wide, no carina across gena
Kardopocephalus Metc.
- 61 (62) Vertex declivous, anterior marginal carina acutely angulate at apex, base
of frons visible in dorsal view *Spino* gen. n.
- 62 (61) Vertex usually not declivous, anterior marginal carina strongly present,

- not forming an acute angle at apex, base of frons not visible in dorsal view 63
- 63 (64) Vertex elongate-triangular, transverse or bluntly rounded at apex, produced before eyes for about half their length, disk strongly impressed, median carina of frons not visible in dorsal view 65
- 64 (63) Vertex five- or six-sided, not produced before eyes for more than half their length, usually less, anterior and posterior margins subangulate, median carina of frons visible in dorsal view 77
- 65 (66) Lateral carinae of frons foliate at their junction basally, raised much above disk, frons not carinate in basal half, or weakly so; tegmina with a large round callus in costal cell near node *Deferunda* Dist.
- 66 (65) Lateral carinae of frons not foliate at junction basally, not much raised above disk, frons distinctly carinate in basal half; tegmina devoid of callus at stigma 67
- 67 (68) Frons not nearly twice as long as broad, vertex about as long medially as broad at base of median carina, lateral carinae of pronotal disk shallowly concave, apical areoles R_1 , R_s , and M_1 in tegmen indented, apex of branches of Sc white, a spot in cells R_2 and M_1 *Paratangia* Mel.
- 68 (67) Not as above 69
- 69 (70) Vertex produced before eyes for one- to two-thirds length of eye, in profile meeting frons at an acute angle; lateral carinae of frons almost meeting in an acute point at base, not as eminent as median carina. M_1+2 in tegmina not forked before subapical line of transverse veins 71
- 70 (69) Vertex produced before eyes for scarcely half their length, in profile not meeting frons in an acute angle, lateral carinae of frons more prominent than median carina, not meeting basally 75
- 71 (72) Pronotum with supernumerary carinae and areolets outside disk *Betatropis* Mats.
- 72 (71) Pronotum without areolets laterad of disk 73
- 73 (74) Posterior margin of vertex excavate *Epirama* Mel.
- 74 (73) Posterior margin of vertex truncate *Callichlamys* Kirk.
- 75 (76) Vertex truncate at base; lateral discal carinae of pronotum not more than 1.5 times length of median carina; tegmina with M_1+2 not forked before subapical transverse line *Caristianus* Dist.
- 76 (75) Vertex widely excavate at base; lateral discal carinae of pronotum fully twice as long as median carina; tegmina with M_1+2 forked a little before subapical transverse line *Kurandella* gen. n.
- 77 (78) Median carina of vertex at base as high as lateral margins or nearly so, median carina of pronotum usually only a little shorter than lateral discal carinae; tegulae curved, not carinate 79
- 78 (77) Median carina of vertex, if present, weak; disk of vertex distinctly depressed, without an impression on each side of middle line, tegulae often carinate or strongly angulately bent 85
- 79 (80) Median carina of vertex distinct at apex; pronotum very narrow behind eyes 81

- 80 (79) Median carina of vertex obsolete or absent apically; pronotum not narrow behind eyes 83
- 81 (82) Lateral carinae of pronotal disk twice length of median carina
Mommar gen. n.
- 82 (81) Lateral carinae of pronotal disk not exceeding 1.5 times length of median carina *Catonoides* Metc.
- 83 (84) Vertex acutely angulate at apex; anterior margin of pronotal disk not more than one half of its width across basal margin . . . *Salemina* Kirk.
- 84 (83) Vertex very obtusely angulate at apex; anterior margin of pronotal disk fully three-quarters of its width across basal margin *Cionoderella* gen. n.
- 85 (86) Vertex deeply impressed in middle of disk, obsolete carinate medially at base; median carina of pronotum one-half as long as lateral carinae of disk 87
- 86 (85) Vertex, if impressed, not deeply so; median carina of pronotum one-third as long as lateral carinae 91
- 87 (88) Pronotum with a series of areolets laterad of disk; tegmina with M_1+2 forked at apical transverse line . . . *Francesca* Kirk.
- 88 (87) Pronotum without such areolets; tegmina with M_1+2 forked just distad of level of stigma 89
- 89 (90) Vertex acute apically, posteriorly acutely excavate, carinae of head subfoliate; lateral carinae of pronotal disk convex, short; tegmina with most apical areolets of M half as long as subapical *Moraballia* gen. n.
- 90 (89) Vertex very obtuse apically, posterior margin parallel to anterior, disk as deeply sunken as long in middle line, median carina of frons not foliate; lateral carinae of pronotal disk long and concave; tegmina with most apical areolets of M more than half length of subapical
Bathycephala gen. n.
- 91 (92) Anterior third of mesonotal disk separated by a transverse ridge of callus from posterior two-thirds, this portion and part of lateral fields of a finer surface texture; pronotum with four indefinite areolets on each side
Kempiana Muir
- 92 (91) Mesonotal disk of homogeneous texture; no areolets on pronotum . . . 93
- 93 (94) Vertex ecarinate; lateral carinae of pronotal disk concave *Lanuvia* Stål
- 94 (93) Vertex distinctly medially carinate, at least basally 95
- 95 (96) Lateral carinae of pronotal disk concave . . . *Paracatonia* gen. n.
- 96 (95) Lateral carinae of pronotal disk convex 97
- 97 (98) Frons scarcely 1.3 times longer than broad; vertex forming angle of 130° at apex; tegmina with cell M_1 scarcely twice as long as broad
Mahuna Dist.
- 98 (97) Frons about 1.5 times longer than broad; vertex forming angle of 155° at apex; tegmina with cell M_1 2.5 times as long as broad at base
Mlanjella gen. n.
- 99 (100) Latero-apical triangular facets of vertex feebly demarcated on their frontal margin, each traversed horizontally by a short carina arising from lateral margin 101

- 100 (99) Latero-apical facets, whether distinct or feebly developed, not traversed horizontally by a carina 103
- 101 (102) Frons broader than long; antennae with second segment elongate-ovate, extending laterad of eyes; pronotal disk minute, vertical foliate expansions on certain tegminal veins; R, M, and Cu₁a converging almost to meet at nodal line *Haitiana* Doz.
- 102 (101) Frons longer than broad; antennae, pronotal disk, and tegminal veins not as above *Eurynomeus* Kirk.
- 103 (104) Vertex markedly elongate 105
- 104 (103) Vertex relatively short 107
- 105 (106) Lateral margins of vertex strongly foliate, posterior margin almost level with anterior margin of eyes; lateral carinae of pronotal disk foliate *Pseudhelicoptera* Fowl.
- 106 (105) Lateral margins of vertex not foliate, posterior margin not level with anterior margin of eyes *Remosachilus* gen. n.
- 107 (108) Latero-apical facets of vertex obscure, a broad callus in their place 109
- 108 (107) Latero-apical facets of vertex not replaced by callus 111
- 109 (110) Lateral carinae of pronotal disk concave *Agandecca* White
- 110 (109) Lateral carinae of pronotal disk convex *Aphyphia* Mel.
- 111 (112) Vertex 1.3 times longer in middle line than wide at its base; latero-apical facets of vertex very small, frons three times as wide at widest part as at base *Hamba* Dist.
- 112 (111) Vertex not so relatively long 113
- 113 (114) Vertex distinctly medially carinate throughout, disk scarcely depressed, if at all, lateral margins of vertex not subfoliate or raised higher than median carina 115
- 114 (113) Vertex not medially carinate or only strongly so in basal half, when lateral margins are somewhat raised 133
- 115 (116) Frons broader than long in middle line; pronotum with five areolets laterally; tegmina with Cu₁b abruptly and deeply curved near level of apex of clavus, corium granulate 117
- 116 (115) Frons not broader than long; tegmina with Cu₁b not deeply curved 119
- 117 (118) Frons broader than long (1.3:1); vertex with latero-apical facets large, extending caudad for at least one-third of length of vertex; tegmina with apical cells of M distinctly longer than subapical, veins in membrane not granulate *Taloka* Dist.
- 118 (117) Frons broader than long, scarcely 1.2:1; vertex with latero-apical facets minute, occupying one-fifth of lateral margin; tegmina with apical cells of M distinctly shorter than subapical, veins in membrane strongly granulate *Gordiacea* Metc.
- 119 (120) Pronotum not markedly narrow or constricted behind eyes, usually devoid of areolets outside disk, lateral discal carinae not concave, not twice as long as median carina of pronotum 121
- 120 (119) Pronotum much narrowed or constricted behind eyes, usually with areolets, lateral discal carinae concave, at least twice as long as median carina 129

- 121 (122) Vertex curving downward anteriorly; lateral discal carinae of pronotum strongly convex, median pronotal carina not nearly half length of middle line of vertex; tegmina with apical cells of M subequal to subapical cells or longer *Cythna* Kirk.
- 122 (121) Vertex with disk in one plane; lateral discal carinae of pronotum straight, oblique; tegmina with apical cells of M not nearly as long as subapical 123
- 123 (124) Median carina of pronotum distinctly more than half length of middle line of vertex; apex of clavus distinctly distad of middle of tegmen 125
- 124 (123) Median pronotal carina not distinctly more than half length of middle line of vertex; apex of clavus not distad of middle of tegmen 127
- 125 (126) Disk of pronotum not at all elevated, no impressed areolets laterad of disk; tegmina with Sc and R forking much basad of node, with six or seven branches at apex *Usana* Dist.
- 126 (125) Disk of pronotum slightly elevated, areolets present laterad of disk, tegmina with Sc and R forking close to node, with four branches at apex *Opsiplanon* Fenn.
- 127 (128) Length of median carina of pronotum less than half that of vertex; rostrum not very short; tegmina with apex of clavus distinctly basad of middle *Ballomarius* Jacobi
- 128 (127) Length of median carina of pronotum half that of vertex; rostrum very short; tegmina with apex of clavus at middle *Epiusana* gen. n.
- 129 (130) Anterior half of vertex in profile straight, rectangulately meeting frons *Phenelia* Kirk.
- 130 (129) Anterior half of vertex in profile slightly decurved, almost rounding into frons at apex 131
- 131 (132) Latero-apical facets of vertex as broad as long or broader; pronotum devoid of areolets; anterior margin of pronotal disk transverse *Nephelia* Kirk.
- 132 (131) Latero-apical facets of vertex longer than broad; pronotum with areolets laterad of disk, if feeble; anterior margin of pronotal disk convex. *Argeleusa* Kirk.
- 133 (134) Vertex transverse at apex, latero-apical facets minute, making outline of vertex subrectangular, lateral discal carinae of pronotum straight, reaching hind margin, not twice length of median carina *Callinesia* Kirk.
- 134 (133) Vertex acutely rounded or angulate at apex, five- or six-sided, or conical in outline 135
- 135 (136) Tegmina with M_1+2 not forked before apical transverse line *Cnidus* Stål
- 136 (135) Tegmina with M_1+2 forked before apical transverse line 137
- 137 (138) Latero-apical facets of vertex subvertical, scarcely visible in dorsal view; pronotum devoid of areolets outside disk, lateral carinae of disk twice as long as median carina; mesonotum with a transverse callus on anterior third of disk *Magadha* Dist.

- 138 (137) Latero-apical facets of vertex oblique, largely visible in dorsal view; pronotum with areolets laterad of disk, lateral carinae of disk three times as long as median carina; mesonotum without a transverse callus on disk *Catonia* Uhl.

CALERDA Signoret

1863. *Calerda* Signoret, *Ann. Soc. ent. Fr.* **4** (3):583. Haplotype, *Calerda biocellata* Signoret.

Head with eyes not quite as wide as pronotum. Vertex transverse, about 1.8 times as broad as long, apparent anterior margin in dorsal view shallowly convex, vertex rounding into frons, devoid of anterior marginal carina. Frons strongly convex, devoid of median carina, lateral margins strongly produced laterally; frontoclypeal suture excavate, clypeus convex, medially carinate. Antennae globose, ocelli approximated to lateral carinae of frons; rostrum reaching to post-coxae. Pronotum very short, median carina weak; mesonotum tricarinate, almost as long as wide. Hind tibiae devoid of spines.

Tegmina narrow, Sc+R and Cur apparently forking about level with apex of clavus, apical areoles short, about twice as long as broad, rather less than half as long as subapical.

Calerda biocellata Signoret

1863. *Calerda biocellata* Signoret, loc. cit.:584.

Length to apex of tegmina, 3 mm.

Yellowish; two spots on disk of vertex near hind margin, frons except in middle line black; mesonotum with exception of carinae fuscous-piceous. Tarsi yellowish. Abdomen testaceous mottled fuscous. Tegmina translucent, veins brownish.

The description and figure accord reasonably well in general characters with members of the *Plectoderes* group. While the head is like that of *Plectoderes*, *Calerda* is kept apart by the comparatively long pronotum and by the latter distinctly exceeding the width of the head with eyes.

PYRRHYLLIS Kirkaldy

1906. *Pyrrhyllis* Kirkaldy, *Bull. Hawaii. Sug. Ass. ent. Ser.* **1** (9):420. Haplotype, *Pyrrhyllis pyrrhyllis* Kirkaldy, *ibid.*:421.

Vertex broader than long (4:1), anterior margin shallowly convex, posterior margin shallowly excavate, disk declivous, depressed inside anterior margin, medially carinate except at apex, frons convex, as long in middle line as broad, median carina fine, absent at base, lateral margins gradually diverging to below level of antennae, foliately expanded laterally. Clypeus short, laterally carinate, median carina absent, rostrum with apical joint shorter than subapical, antennae sunk in a slight depression, but not roofed over above, subglobose, ocelli just touching eyes; eyes not overlapping pronotum so as almost to cover it, pronotum moderately short, lateral margin short, no carina between eye and tegula, ventral margins of lateral pronotal fields subangulately rounded and oblique; median carina one-third length of lateral discal carinae, latter straight or convex; mesonotum longer than vertex and pronotum

together, distinctly tricarinate, tegulae not carinate, pro-tibiae shorter than femora with trochanters, post-tibiae with a single spine basad of middle. Tegmina with Sc+R forking distad of fork of Cu1, Sc with two branches, R with two, M₁ forked at level of nodal transverse line, clavus terminating at middle of tegmen.

***Pyrrhyllis laevifrons* (Walker) comb. n.**

(FIG. 27)

1858. *Cixius laevifrons* Walker, *Insecta Saundersiana* Hom.: 43.

The figures are of Walker's holotype. As far as is at present known the genus is Australian.

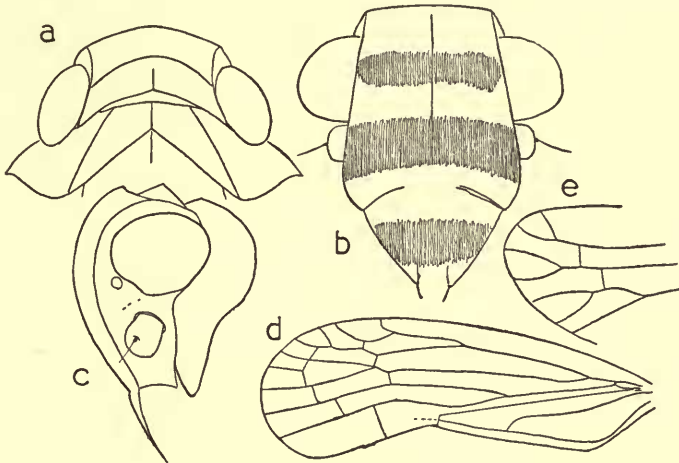


FIG. 27. *Pyrrhyllis laevifrons* (Walker).

a, vertex and pronotum; *b*, frons and clypeus; *c*, head in profile; *d*, tegmen; *e*, apex of wing.

PLECTODERES Spinola

1839. *Plectoderes* Spinola, *Ann. Soc. ent. Fr.* 8: 328. Haplotype, *Flata collaris* Coquebert 1801 *Ill. Icon. Ins.* 2: 79; pl. 18, figs. 11a-d.

Head with eyes almost as wide as pronotum.

Vertex broader than long (3:1), anterior margin shallowly convex, separated from frons by a very slender carina, median carina complete; frons longer than broad (1.1:1), very convex in profile, medially carinate except in basal third, lateral margins strongly produced laterally, clypeus subequilaterally triangular, straight in profile or nearly so, carinate medially and laterally, rostrum with apical segment longer than subapical or about equal, attaining post-coxae in female, antennae subglobose, sunk in a deep depression, ocelli distinctly separated from eyes. Pronotum very short, laterally in form of a thin subvertical plate, almost completely covered by hind margin of eyes, ventral margin of lateral pronotal fields angulate and oblique, disk finely tricarinate; mesonotum longer than vertex and pronotum combined, tricarinate, tegulae not carinate, pro-tibiae longer than femora, post-tibiae with a single

spine basad of middle. Tegmina with Sc+R fork about level with Cur fork, Sc with 4-6 cells at apex, rather crowded. Clavus terminating distad of middle of tegmen.

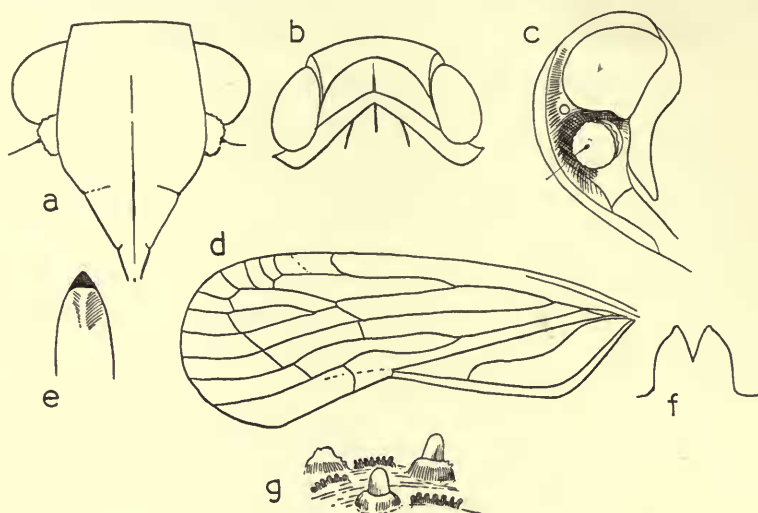


FIG. 28. *Plectoderes collaris* Coquebert.

a, frons and clypeus; *b*, vertex and pronotum; *c*, head in profile; *d*, tegmen; *e*, apex of anal segment of male, dorsal view; *f*, medioventral process of pygofer; *g*, ornamentation on surface of bursa copulatrix.

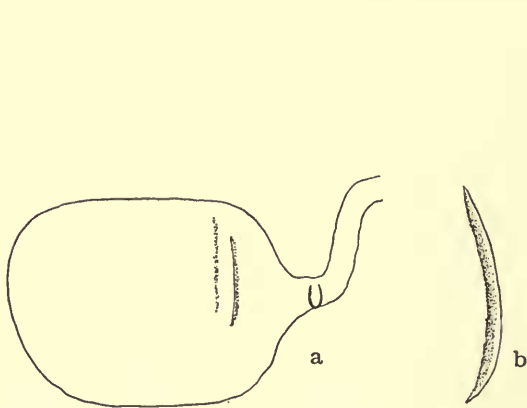


FIG. 29. *Plectoderes basalis* Fowler.

a, bursa copulatrix; *b*, one of shagreen tracts in wall (enlarged), both figures semi-diagrammatic.

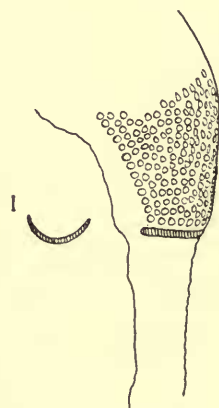


FIG. 30. *Plectoderes flavovittatus* Fowler.

Entrance to bursa copulatrix with (I) dorsal view of sclerite at entrance.

In addition to the above characters the base of the frons is punctate. The figures of *Plectoderes scapularis* Metcalf given by Metcalf (1938, pls. x, xvi, xxii) justify his view that this species stands apart from *P. collaris* in characters of generic value. Until further material is available for comparison with the single specimen on which *scapularis* is based, the significance of its unusual venation must remain uncertain. For the present the writer makes this species the type of **Plectoderella**, a new subgenus

of *Plectoderes*, separated from the typical subgenus by the lateral carinae of the pronotal disk being four times as long as the median carina, and more markedly divergent laterad, and by the lateral carinae of the mesonotal disk diverging from apex to base: to these it may prove possible to add the forking of Sc+R near the base of the tegmina and the bifurcation of Cu₁a and Cu₁b after their separation. The writer regards the subgenus *Plectoderes* as containing only *Flata collaris* Coquebert (Fig. 28), *P. basalis* Fowler (Fig. 29), *P. montanus* Fowler, and *P. flavovittatus* Fowler (Fig. 30). *P. collaris* Coquebert in the male has the anal segment long and tubular; in *P. basalis* Fowler it is short. In *P. montanus* Fowler the frontoclypeal suture is deeply impressed and the lateral margins of the frons widely dilated; the frons is punctate from base to level of antennae, while the pronotum has four obsolete depressions on each side lateral of disk. On present evidence it would seem that the presence of a horseshoe-shaped sclerite at the entrance of the bursa copulatrix is a generic character.

RUPEX gen. n.

1904. *Plectoderes (pars)* Fowler, *Biol. cent.-Amer. Rhynch. Hom.* **1**:110.

1938. *Messeis* Metcalf (not Stål), *Bull. Mus. comp. Zool. Harv.* **82** (5):372.

Head with eyes almost as wide as pronotum, vertex broader than long (3:1), anterior margin subangulately convex, separated from frons by a fine carina, median carina present except near apex, frons broad, convex in profile, medially carinate, clypeus subequilaterally triangular. Pronotum short, disk distinct, median carina not very much shorter than lateral discal carinae, pronotum laterad of disk not almost completely overlapped by eyes, hind portion not steeply inclined anteroventrad, with five obsolete ridges on each side; mesonotum longer than vertex and pronotum combined, tricarinate, tegulae not carinate. Tegmina with Sc+R fork about level with fork of Cu₁, Sc with two branches just before fork, clavus terminating distad of middle.

Type species, *Plectoderes asper* Fowler.

Rupex asper (Fowler)

(FIG. 31)

1904. *Plectoderes asper* Fowler, loc. cit.:110.

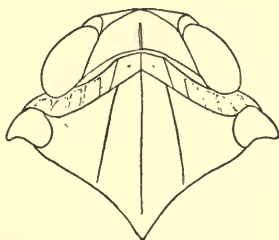


FIG. 31. *Rupex asper* (Fowler).

Vertex, pronotum, and mesonotum.

This genus is distinguished from *Plectoderes* chiefly by the characters of the pronotum and of the tegmina. The medioventral process of the pygofer is bifid as in *Plectoderes*. The figure given is of Fowler's holotype.

MOMAR gen. n.

Head with eyes almost as wide as pronotum. Vertex across base at middle broader than long in middle line (1.7:1), medially carinate completely, anterior margin subangulately rounded, markedly convex, slightly produced before eyes, lateral margins straight, divergent basad, posterior margin angularly excavate, frons convex in profile, moderately broad, lateral margins somewhat diverging distally, median carina present throughout, lateral carinae produced laterally, clypeus medially and laterally carinate, apical joint of rostrum exceeding subapical joint, apex attaining meso-coxae only, antennae subglobose, not sunk deeply in a depression, ocelli not contiguous with eyes, eyes not entirely covering pronotum but much overlapping. Pronotum short, in middle line half length of vertex in same line, tricarinate, lateral carinae of disk straight, diverging to hind margin, each twice as long as median carina, lateral fields inclined anteroventrad; mesonotum about twice as long as vertex and pronotum combined, tricarinate, post-tibiae with a single spine basad of middle. Tegmina with Sc+R and Cu₁ forked at about same level, just basad of apex of clavus, clavus terminating at middle of tegmen. Anal segment of male very short, medioventral process of pygofer semilunate, not bifid. First valvulae of ovipositor with four teeth, bursa copulatrix with faint annular ornamentation, three or four enlarged rings near entrance, these rings each with five tubercles on one side.

Type species, *Plectoderes lineatocollis* Fowler.

Momar lineatocollis (Fowler)

(FIG. 32)

1904. *Plectoderes lineatocollis* Fowler, loc. cit.: 111, pl. 11, figs. 26 a, b.

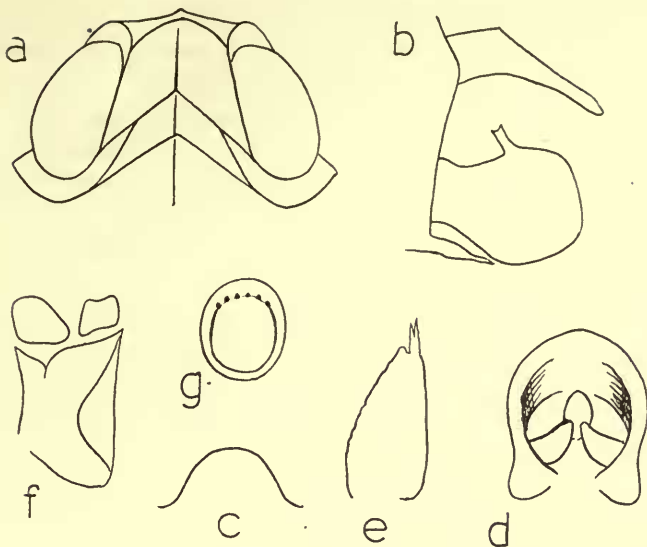
The figures are based on the holotype from Volcán de Chiriquí (Champion) and on a specimen of the opposite sex in the type series.

This genus is distinguished by the proportions of the frons and vertex, pronotum and medioventral process of the pygofer.

SPINO gen. n.

Head with eyes slightly narrower than pronotum. Vertex across base of middle broader than long in middle line (1.4:1), medially carinate except near apex, anterior margin finely carinate, forming an angle of 75° at apex, produced before eyes for about one-third of their length, lateral margins straight, diverging caudad, posterior margin excavate, re-entrant angle 130°; frons elongate, narrowed between eyes, convex in profile, medially and laterally carinate throughout, lateral margins sinuately diverging distally, antennae subovate, not sunk in a depression, ocelli not contiguous with eyes, eyes not entirely covering pronotum. Pronotum short, in middle line half as long as vertex in same line, lateral carinae of disk straight, diverging to hind margin, each 1.5 times as long as median carina, lateral fields somewhat inclined anteroventrad but not extensively overlapped by eyes; mesonotum tricarinate, about twice as long as vertex and pronotum combined; post-tibiae with a single spine basad of middle. Tegmina with clavus terminating about middle.

Type species, *Plectoderes notatus* Fowler.

FIG. 32. *Momar lineatocollis* (Fowler).

a, vertex and pronotum; b, male genitalia, lateral view; c, medioventral process of pygofer; d, anal segment of male; e, ventral lobe of first valvula of ovipositor; f, sclerites in vagina; g, a single thickened ring from surface of bursa copulatrix near its base.

***Spino notatus* (Fowler)**

(FIG. 33)

1904. *Plectoderes notatus* Fowler, loc. cit.: 110, pl. 11, fig. 23 a.

The figures are of Fowler's holotype. The genus is distinguished by the shape of the vertex and pronotum. *S. notatus* is relatively large.

FIG. 33. *Spino notatus* (Fowler).

a, vertex and pronotum; b, frons.

PHYPIA Stål

1862. *Phypia* Stål, Bidrag Rio Janeiro-trakt. Hemipt. 2, *K. svenska Vetensk. Akad. Handl.* 3 (6): 65. Logotype, *Phrygia fuscoguttata* Stål.

1938. *Rhotella* Metcalf, *Bull. Mus. comp. Zool. Harv.* 82 (5): 375. Orthotype, *Rhotella punctata* Metc., *ibid.*

Head with eyes distinctly narrower than pronotum. Vertex across base broader than long in middle line (2:2:1), produced before eyes for four-tenths of their length, anterior margin carinate, forming an angle of 130° at apex, lateral margins diverging basad, posterior margin shallowly concave, median carina present; frons shallowly

convex in profile, longer than broad (nearly 1.5:1), lateral margins slightly convex, diverging to below level of antennae, median carina present throughout, lateral marginal carinae slightly subfoliately produced laterally, clypeus laterally and medially carinate, rostrum with subapical joint shorter than apical, antennae subglobose, not deeply sunk in a depression, ocelli not contiguous with eyes, eyes not extensively covering pronotum. Pronotum relatively long, in middle line longer than vertex in same line (1.2:1), lateral carinae of disk prominent, straight, diverging to hind margin, each longer than median carina (1.7:1), pronotum laterad of disk moderately broad, not inclined anteroventrad, ventral margin of lateral fields oblique and angulate; mesonotum three times as long as vertex and pronotum combined, tricarinate; pro-tibiae about as long as pro-femora, post-tibiae with a single spine basad of middle. Tegmina with Sc+R forking slightly basad of Cur fork, Sc with two branches at margin distad of stigma, clavus terminating at middle of tegmen, medioventral process entire, strongly convex.

Phypia varinervis (Stål)

(FIG. 34)

1862. *Phrygia varinervis* Stål, loc. cit. 2:5.

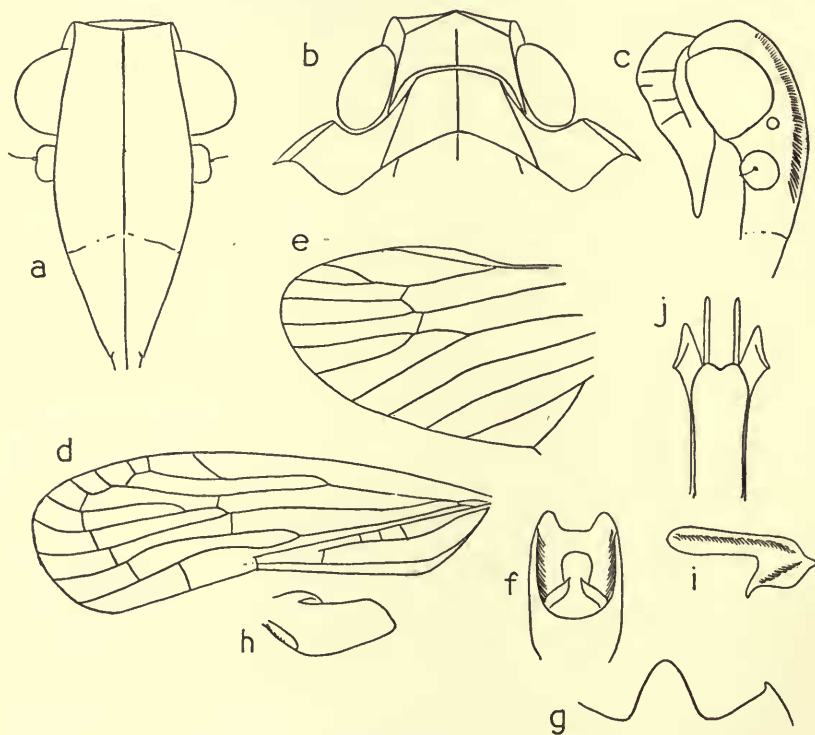


FIG. 34. *Phypia varinervis* (Stål).

a, frons and clypeus; b, vertex and pronotum; c, head in profile; d, tegmen; e, wing; f, anal segment; g, posterior margin of pygofer; h, left genital style, lateral view; i, right genital style, dorsal view; j, aedeagus, ventral view.

In Stål's holotype the medioventral process of the pygofer is about as long as broad across the base. The genital styles are subovate in side view, and each has a small curved spine on its inner face, with a few small setae close to it. The anal segment is small and the latero-apical angles are rounded and produced.

Phypia punctata (Metcalf) comb. n.

1938. *Rhotella punctata* Metcalf, loc. cit.: 375.

ABAS gen. n.

Head with eyes not as wide as pronotum. Vertex across base broader than long in middle line (2.3:1), produced before eyes for nearly half their length, finely carinate medially except near apex, disk slightly depressed, anterior margin angulately produced forming an angle of 147° at apex, lateral margins straight, diverging basad, posterior margin shallowly concave; frons moderately convex in profile, not quite twice as broad at widest part as at base, lateral margins distinctly diverging distally, incurved rather abruptly before suture, median carina prominent, present throughout, disk slightly hollowed out between middle line and margins, lateral margins carinate; clypeus short, medially and laterally carinate, antennae subovate, not sunk in a depression, eyes not covering pronotum but markedly overlapping. Pronotum short, in middle line two-fifths length of vertex in same line, lateral carinae of disk concave, long, diverging to behind eyes, each five times as long as median carina, pronotum laterad of disk moderately inclined anteroventrad; mesonotum longer than vertex and pronotum combined (3.8:1), tricarinate, carinae parallel; post-tibiae with a single spine basad of middle. Tegmina with Sc+R forking slightly basad of Cu₁ fork, clavus terminating distad of middle of tegmen. Wings with cell R₁ short but longer than its stalk, M with two branches at margin.

Type species, *Abas unipunctatus* sp. n.

Abas unipunctatus sp. n.

(FIG. 35)

Female: length, 4.5 mm.; tegmen, 5.5 mm.

Stramineous, powdered white; a narrow band extending from below antennae on to anterior portion of lateral fields of pronotum, above eyes and across basal angles of vertex, and covering disk of pronotum and apex of mesonotal disk, piceous. Tegmina cretaceous with a spot near apex of clavus piceous, apical margin and distal half of apical areoles slightly infusate. Wings smoky. Seventh sternite of ♀ as long as remainder of ventral surface of abdomen, posteriorly transverse-concave. Bursa copulatrix apparently unarmed, a flattened polygonal sclerite in wall of vagina. The other details are best shown by the figure.

Described from one female in the British Museum collected at Senahu, Vera Paz (Champion). The genus is distinguished by the shape of the margins of the frons and of the pronotal disk. The coloration seems to be unique in the tribe.

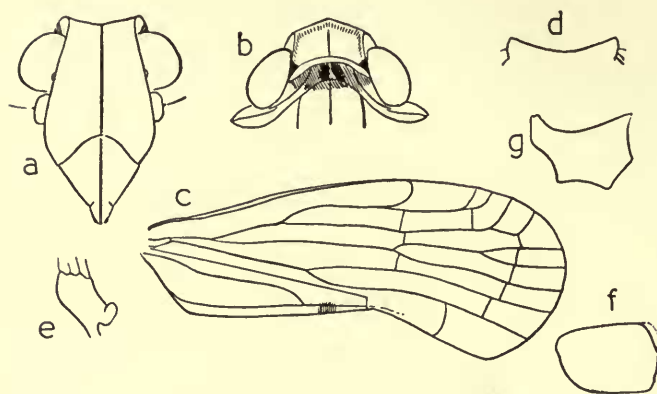


FIG. 35. *Abas unipunctatus* gen. et sp. n.
 a, frons and clypeus; b, vertex and pronotum; c, tegmen; d, posterior margin of pregenital sternite of female; e, ventral lobe of first valvula of ovipositor; f, third valvula of ovipositor; g, sclerite in wall of vagina.

HEMIPLECTODERES gen. n.

Head with eyes not quite as wide as pronotum. Vertex across base broader than long in middle line (3:1), produced before eyes for a third of their length, medially carinate, disk slightly declivous, anterior margin angulately produced forming an angle of 130° at apex, lateral margins straight, diverging basad, posterior margin shallowly subangulately concave; frons as long as broad, moderately convex in profile, 1.3 times as broad at widest part as at base, lateral margins carinate, convex, diverging to just below level of antennae then incurved, median carina present throughout, disk not hollowed out longitudinally, distinctly punctate in basal quarter, clypeus moderately short, laterally and medially carinate, rostrum with apical and subapical joints approximately equal, antennae subglobose, not sunk in a depression, eyes not covering pronotum but markedly overlapping. Pronotum short, in middle line four-sevenths length of vertex in same line, tricarinate, lateral carinae of disk convex, diverging basad, each 3.5 times as long as median carina, anterior margin truncate, posterior margin angularly excavate, pronotum laterad of disk moderately inclined anteroventrad; mesonotum longer than vertex and pronotum combined, tricarinate; post-tibiae with a single spine basad of middle. Tegmina with Sc+R forking about level with fork of Cur.

Anal segment of male very short, latero-apical angles lobate. Medioventral process of pygofer subtriangular.

Type species, *Hemiplectoderes trabeculatus* sp. n.

Hemiplectoderes trabeculatus sp. n.

(FIG. 36)

Male: length, 4.7 mm.; tegmen, 5.0 mm. Female: length, 4.8 mm.; tegmen, 5.0 mm.

Testaceous-fuscous, abdomen darker; a spot on lateral lobes of pronotum piceous. Tegmina fuscous, all cells of corium traversed by slender pallid bars giving appearance of transverse veinlets, about fifteen irregular rows of such bars on corium; transverse veins of membrane pallid. Wings smoky.

Medioventral process of pygofer fully as long as broad; genital styles with a large recurved lobe in middle of dorsal margin with a process directed inward from it. Phallobase with a lanceolate dorsal lobe, bifid at apex, a sclerotized process ventrally as shown in figures.

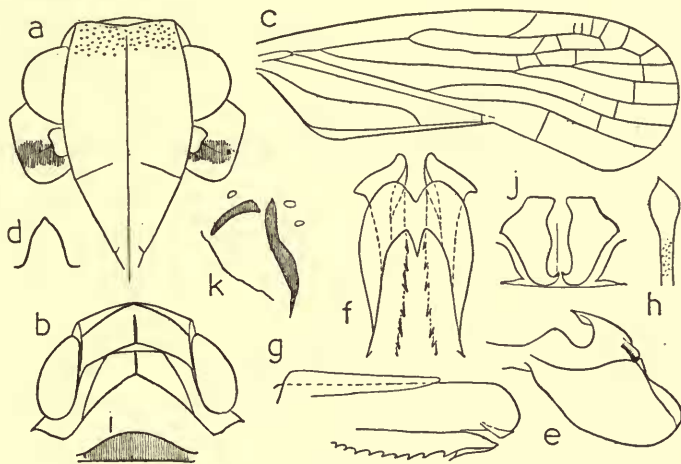


FIG. 36. *Hemiplectoderes trabeculatus* gen. et sp. n.

a, frons and clypeus; b, vertex and pronotum; c, tegmen; d, medioventral process of pygofer; e, genital style, lateral view; f, aedeagus, ventral view; g, same, lateral view; h, apex of one of phallic appendages; i, subvaginal plate; j, ventral lobes of first valvulae of ovipositor; k, sclerites of bursa copulatrix.

Ventral lobes of third valvulae of ovipositor subtriangular, distally truncate, sinuate on mesad border, subvaginal plate transversely elongate, lenticular. Bursa copulatrix armed with two sclerites, one elongate-cuneiform, the other, twice as long, sinuate-lanceolate.

Described from one male and one female taken in St. John's Valley, Northern Range, Trinidad, B.W.I., by Dr. J. G. Myers (10 February 1929 and 3 December 1928 respectively), Brit. Mus. 1929-170, on undergrowth of hill forest.

This genus is distinguished by the proportions of the head and pronotum.

SYMPLEGADELLA gen. n.

Head with eyes distinctly narrower than pronotum. Vertex across base broader than long in middle line (3:1), produced before eyes for two-fifths of their length, medially carinate except at apex, disk slightly declivous, anterior margin angulately produced forming an angle of 133° at apex, lateral margins straight, diverging basad, posterior margin shallowly subangulately concave; frons moderately convex in profile, longer than broad (1.2:1), 1.6 times as wide at widest part as at base, lateral margins carinate, convex, gradually diverging to below level of antennae thence

incurved to suture, median carina present throughout, disk not hollowed out longitudinally, clypeus moderately short, laterally and medially carinate; antennae subglobose, not sunk in a depression, eyes not covering pronotum. Pronotum moderately short, in middle line equal to or slightly exceeding vertex in same line, tricarinate, lateral carinae of disk straight, diverging basad to margin, each 1.3 times as long as median carina, anterior margin angulately convex, posterior margin angularly excavate, pronotum laterad of disk moderately broad, scarcely inclined anteroventrad; mesonotum longer than vertex and pronotum combined (3.6:1), tricarinate; post-tibiae with a single spine basad of middle. Tegmina with Sc+R forking at level of Cu₁ fork and union of claval veins. Clavus terminating distad of middle of tegmen.

Ovipositor with ventral lobe of first valvulae subtriangular, coarsely setose. Subvaginal plate transversely elongate, lenticular. Bursa copulatrix ornamented with thick-walled rings of equal size, each beset with about eight pustules.

Type species, *Symplegadella irrorata* sp. n.

***Symplegadella irrorata* sp. n.**

(FIG. 37)

Female: length, 6.5 mm.; tegmen, 7.5 mm.

Head testaceous; pronotum testaceous with three obsolete depressions laterad fuscous; mesonotum fuscous-piceous with four paler spots on disk, tegulae testaceous;

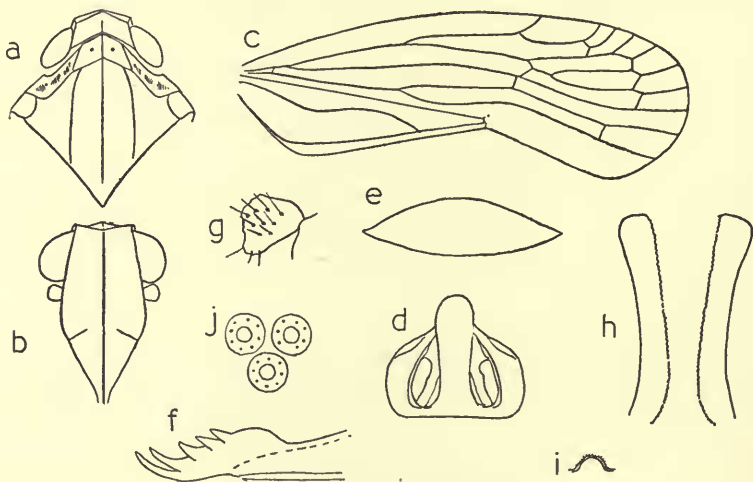


FIG. 37. *Symplegadella irrorata* gen. et sp. n.

a, vertex, pronotum, and mesonotum; b, frons and clypeus; c, tegmen; d, anal segment of female; e, subvaginal plate; f, apex of first valvula of ovipositor; g, ventral lobe of first valvula; h, pair of shagreen folds in wall of bursa copulatrix; i, cross-sectional view of one of folds (semi-diagrammatic); j, three rings from surface ornamentation of bursa copulatrix.

femora fuscous, tibiae and tarsi testaceous. Tegmina with pale ground colour, but so heavily barred fuscous-piceous between the veins, herring-bone pattern, as to appear fuscous; veins alternately pallid and fuscous-piceous. Wings smoky.

Anal segment of female short. Ovipositor with ventral lobe of first valvulae small, beset with about a dozen setae; first valvulae five-toothed, the teeth increasing in size distally. Bursa copulatrix with a pair of elongate, shagreened, rod-like structures formed by sclerotization of elongate grooves in the wall.

Described from one female taken at Sabo, Vera Paz (Champion). Type in British Museum (Natural History).

This genus appears to be close to *Phypia*, but differs in the proportions of the head and pronotum.

PHRYGIA Stål

1856. *Phrygia* Stål, *Öfvers. Vetensk. Akad. Förh. Stockh.* **13**:163. Haplotype, *Phrygia fuscata* Stål.

Head with eyes distinctly narrower than pronotum. Vertex across base broader than apparent length in middle line (1.5:1), not appreciably produced before eyes, medially carinate throughout, disk slightly declivous, anteriorly rounding into frons, not separated from it by a carina, lateral carinae straight, converging basad, posterior margin transverse; frons moderately convex in profile, longer than broad (1.1:1), 1.2 times as wide at widest part as at base, lateral margins carinate, convex, gradually diverging to below level of antennae thence incurved to suture, median carina present throughout, disk shallowly hollowed-out longitudinally on each side of middle; clypeus large, carinate medially and laterally; rostrum short, apical segment small; antennae subovate, not sunk in a depression, ocelli not contiguous with eyes, latter only slightly excavate beneath. Pronotum rather long, in middle line about a quarter length of vertex in same line, median carina distinct, lateral carinae of disk obsolete, diverging to hind margin, each about twice as long as median carina, anterior margin truncate, posterior margin angularly excavate, pronotum laterad of disk distinctly wide, not inclined anteroventrad, carinate at margins, between eyes and tegulae, ventro-lateral fields large, lower margin rounded; mesonotum tricarinate; post-tibiae with a single spine basad of middle.

Tegmina 2.6 times as long as broad, Sc+R fork and Cu fork at same level near middle, clavus terminating distad of middle, R simple, M four-branched, Cu1a simple, Cu1b simple.

Phrygia fuscata Stål

(FIG. 38)

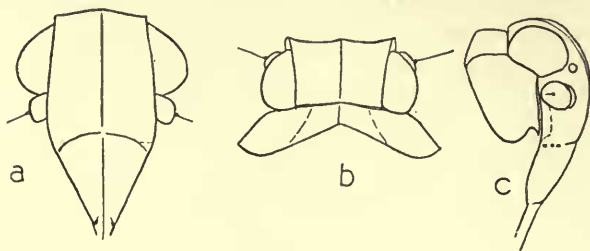
1856. *Phrygia fuscata* Stål, *Öfvers. Vetensk. Akad. Förh. Stockh.* **13**:164.

The figures, kindly prepared by Dr. René Malaise, are of Stål's holotype.

PLECTORINGA gen. n.

1904. *Plectoderes* (*pars*) Fowler, *Biol. cent.-Amer. Rhynch. Hom.* **1**:108.

Head with eyes rather narrower than pronotum. Vertex wider across base between basal angles than long in middle line (2.3:1), declivous, produced before eyes for about one-fifth of their length, medially carinate in basal half, anterior margin

FIG. 38. *Phrygia fuscata* Stål.

a, frons and clypeus; *b*, vertex and pronotum; *c*, head in profile.

carinate, forming an angle of 110° at apex, lateral margins straight, diverging basad, posterior margin excavate in an angle of 115° ; frons convex transversely and in profile, longer than broad (about 1.5:1), widest part about one-sixth broader than width at base, median and lateral carinae distinct; antennae subovate, slightly sunk in a depression, ocelli not quite contiguous with eyes, eyes excavate ventrally. Pronotum in middle line two-thirds length of vertex in same line, not hidden below eyes laterad of disk; anterior margin of disk transverse, posterior margin shallowly angularly excavate, lateral carinae of disk slightly sinuate, each 2.3 times as long as median carina; areas laterad of disk not steeply inclined anteroventrally, comparatively long behind eyes, devoid of supernumerary carinae; mesonotum longer than vertex and pronotum combined, tricarinate; post-tibiae with a single spine basad of middle.

Tegmina with Sc+R fork at same level as Cu₁ fork, Sc with one cell at stigma; ten areoles along apical margin. Clavus terminating at middle of tegmen.

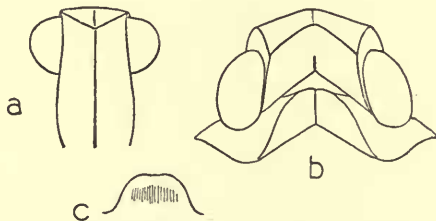
Medioventral process of pygofer approximately semicircularly rounded, obsoletely excavate at apex.

Type species, *Plectoderes excelsus* Fowler.

***Plectoringa excelsa* (Fowler)**

(FIG. 39)

1904. *Plectoderes excelsus* Fowler, loc. cit.: 109, pl. 11, fig. 21, *a*.

FIG. 39. *Plectoringa excelsa* (Fowler).

a, frons, anterodorsal view; *b*, vertex and pronotum; *c*, medioventral process of pygofer.

Notwithstanding Fowler's note the paratype series includes a male, which is figured.

RHINOCOLURA gen. n.

1904. *Plectoderes* (pars) Fowler, *Biol. cent.-Amer. Rhynch. Hom.* 1:108.

Head with eyes a little narrower than pronotum. Vertex declivous, wider across base than long in middle line (2.8:1), slightly produced before eyes, medially carinate, anterior margin carinate forming an angle of 150° at apex, lateral margins straight, slightly diverging basad, posterior margin very shallowly excavate; frons convex in profile, medially carinate throughout, longer in middle line than broad (1.4:1), widest part about 1.3 times width at base, lateral margins slightly convex or almost straight to below level of antennae thence incurved to suture; antennae not sunk in a depression, ocelli remote from eyes, eyes not excavate below. Pronotum in middle line slightly more than half length of vertex in same line, distinctly overlapped by eyes laterad of disk, anterior margin of disk transverse, posterior margin angulately excavate, lateral carinae of disk straight or nearly so, each fully three times as long as median carina, areas laterad of disk steeply inclined anteroventrally, devoid of supernumerary carinae and areolets: mesonotum about twice as long as vertex and pronotum together, tricarinate, carinae parallel; post-tibiae unispinose.

Tegmina relatively long; Sc+R fork about level with Cu1 fork.

Type species, *Plectoderes championi* Fowler.

This genus is distinguished by the shape of the vertex, frons, and pronotum, by the proportions of the body and its size. It differs from *Amblycratus* Uhler and *Hemiplectoderes* in the shape of the frons, and from *Plectoringa* in the shape of the vertex.

Rhinocolura championi (Fowler)

(FIG. 40)

1904. *Plectoderes championi* Fowler, loc. cit.: 108, pl. 11, fig. 19, a.

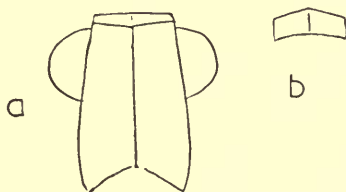


FIG. 40. *Rhinocolura championi* (Fowler).

a, frons, anterodorsal view; b, vertex.

The type species is comparatively large for a member of this tribe, being 9 mm. from vertex to apex of folded tegmen.

CAFFROPYRRHYLLIS gen. n.

Head with eyes about as wide as pronotum. Vertex broader than long (3.3:1) anterior margin carinate, broadly arcuate, passing insensibly into lateral margins,

posterior margin broadly excavate, median carina percurrent, somewhat obscure; base of frons visible from above; frons longer than broad (1.3:1), very little wider at widest part than at base, median carina percurrent, lateral carinae slightly foliate distally; clypeus rather short, carinate medially and laterally; rostrum with sub-apical segment as long as apical; antennae subglobose, exposed dorsally, not sunk in a depression, ocelli not touching eyes, eyes not covering pronotum laterally. Pronotum moderately short, medially carinate, not much inclined anteroventrally laterad of disk, anterior margin broadly convex, posterior margin shallowly concave, ventral margins of lateral lobes rounded, lateral carinae of disk not passing to hind margin, no carina between eye and tegula; mesonotum longer than vertex and pronotum combined, distinctly tricarinate; pro-tibiae shorter than pro-femora with trochanters, post-tibiae with a single spine basad of middle.

Tegmina narrow, Sc+R fork level with Cur fork, Curb not deeply convex distad of fork; clavus terminating distad of middle.

Posterior margin of seventh sternite of female transverse, ventral lobes of first valvulae of ovipositor relatively broad, obliquely truncate distally; third valvulae broadly subovate, a membranous lobe in ventral half of apical margin. Bursa copulatrix furnished with a sclerotized plate.

Type species, *Caffropyrrhyllis bicuspidata* sp. n.

***Caffropyrrhyllis bicuspidata* sp. n.**

(FIG. 41)

Male: length, 3.1 mm.; tegmen, 3.9 mm. Female: length, 3.9 mm.; tegmen, 4.8 mm.

Testaceous; a suffusion below antennae and a faint suffusion on each side of each mesonotal carina brown to fuscous; ventral portion of lateral pronotal lobes fuscopiceous; a pallid vitta from antenna to lower half of tegula, including latter; legs pallid ochraceous; abdomen fuscous.

Tegmina translucent, suffused yellowish-brown; cell Sc, stigma, apical cells of Sc, R, and M₁ and membrane just distad of apex of clavus somewhat darker; veins colorless, pale in membrane. Wings slightly smoky, veins fuscous.

Anal segment of female short, lateral margins converging distally, apical margin notched. Ventral lobes of first valvulae straight on inner margin, external margin subparallel to latter, apical margin oblique. Bursa copulatrix armed with a sclerotized plate bearing a long finger-like spine directed anteriorly and a short blunt subspinose eminence at its base.

Described from two males and two females: 1♂ Mossel Bay, Cape Province, South Africa, 1921, Brit. Mus. 1921-450 (October) and 1921-353 (August); 1♂, 1♀ Mossel Bay, Brit. Mus. 1921-353, 1♀ Katberg, 4,000 ft., December 1932 (Brit. Mus. 1933-695), collected by R. E. Turner.

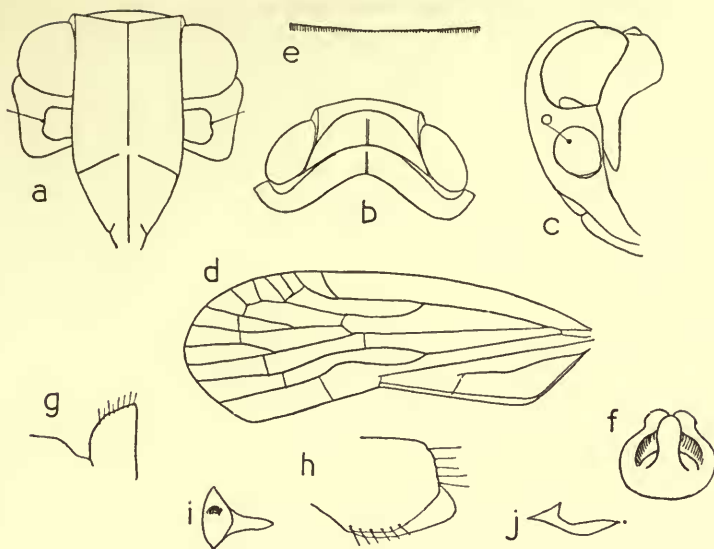


FIG. 41. *Caffropyrrhyllis bicuspidata* gen. et sp. n.

a, frons and clypeus; *b*, vertex and pronotum; *c*, head in profile; *d*, tegmen; *e*, posterior margin of seventh abdominal sternite of female; *f*, anal segment of female; *g*, ventral lobe of first valvula of ovipositor; *h*, third valvula of ovipositor, lateral view; *i*, *j*, postero-lateral and lateral views of sclerite in bursa copulatrix.

TROPIPHLEPSIA Muir

1924. *Tropiphlepsia* Muir, *Mem. Qd. Mus.* 8:32. Orthotype, *Tropiphlepsia badia* Muir, loc. cit.:32.

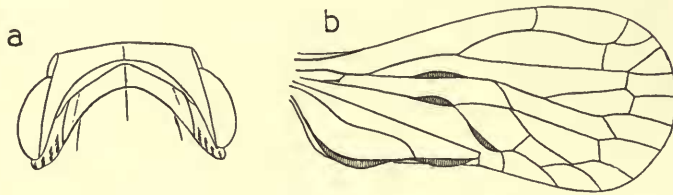
Head with eyes as wide as pronotum. Vertex broader across base than long in middle (8:1), anterior margin carinate, transverse at apex, lateral margins carinate, longer than vertex in middle line, slightly convex, diverging basad, posterior margin roundly excavate, median carina present; frons broad, slightly wider at base than apex, lateral margins slightly convex, not foliate, median carina weakly present; clypeus short, medially and laterally carinate; antennae subglobose, scarcely sunk in a depression, eyes not completely overlapping pronotum though nearly so. Pronotum very short, disk broad, areas laterad of disk strongly inclined antero-ventrally, lateral carinae of disk each twice as long as median carina; mesonotum slightly wider than long, about five times as long as vertex and pronotum combined, distinctly tricarinate, lateral carinae convex. Legs short, pro- and meso-femora slightly flattened.

Tegmina with a small costal area at base, Sc+R fork almost level with Cur fork, M united basally in a stalk with Sc+R, M fork level with node, M1+2 forked basad of apical transverse veins, M3+4 forked at their level; Cur curved mesad to meet M3+4; clavus terminating about middle; a foliate carina on M, Cura+b, Curb, and in two places on second claval vein.

Anal segment of female small, seventh sternite with posterior margin deeply angularly excavate.

Tropiphlepsia badia Muir

(FIG. 42)

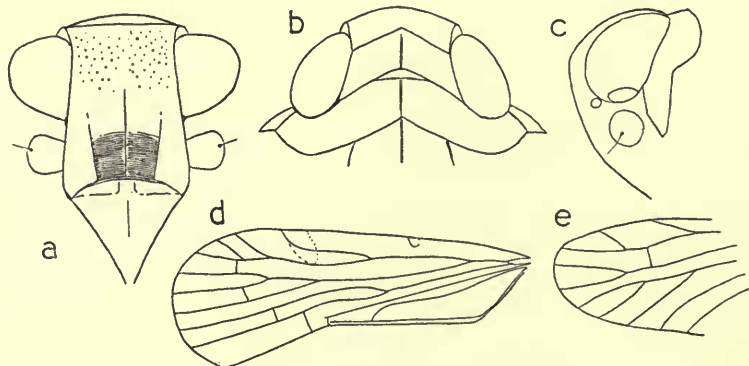
1924. *Tropiphlepsia badia* Muir, loc. cit.:32.FIG. 42. *Tropiphlepsia badia* Muir.

a, vertex and pronotum; b, tegmen.

The drawings are from a specimen in the British Museum.

ARISTYLLIS Kirkaldy1906. *Aristyllis* Kirkaldy, *Bull. Hawaii. Sug. Ass. ent. Ser. 1* (9):418. Orthotype, *Aristyllis aristyllis* Kirkaldy, loc. cit.:419.1926. *Winawa* Haupt, *Philipp. J. Sci.* **29**:442. Haplotype, *Winawa bicolor* Haupt, loc. cit.:443, pl. 1, figs. 7, 8.

Head with eyes not as wide as pronotum. Vertex declivous, anterior margin carinate, forming a distinct angle at apex, lateral margins straight, diverging basad, posterior margin subangularly excavate, median carina weakly percurrent; frons longer than broad (1.2:1), lateral margins straight or very slightly sinuate, diverging

FIG. 43. *Aristyllis omphale* Kirkaldy.

a, frons and clypeus; b, vertex and pronotum; c, basal portion of head in profile; d, tegmen; e, apex of wing.

to below level of antennae, thence incurved, slightly foliate laterad distally, disk convex in basal half, strongly impressed in middle portion of distal half, clypeus short with lateral margins straight, medially and laterally carinate, rostrum with subapical segment shorter than apical, antennae subglobose, not sunk in a depression, ocelli

touching eyes, eyes excavate beneath, not covering pronotum laterad of disk. Pronotum moderately short, ventral margins of lateral lobes slightly obliquely transverse; mesonotum longer than vertex and pronotum together, distinctly tricarinate; pro-tibiae equal to femora, post-tibiae with a single spine basad of middle.

Tegmina with Sc+R fork distad of Cur fork, Cu1b not deeply convex distad of fork; clavus terminating distad of middle.

The genus is Australasian and at present includes only *A. aristyllis* Kirkaldy, *A. omphale* Kirkaldy (Fig. 43), *A. adippe* Kirkaldy, and *A. bicolor* Haupt.

PLECTODEROIDES Matsumura

1914. *Plectoderoides* Matsumura, *Ann. hist. nat. Mus. hung.* **12**:281. Orthotype, *Plectoderoides maculatus* Matsumura, loc. cit.:282.

Head with eyes not as wide as pronotum. Vertex broader between basal angles than long in middle (2.5:1), anterior margin rounded-convex, carinate, lateral margins almost straight, posterior margin subangulately excavate, median carina present; frons longer than broad (1.2:1), lateral margins straight, diverging to below

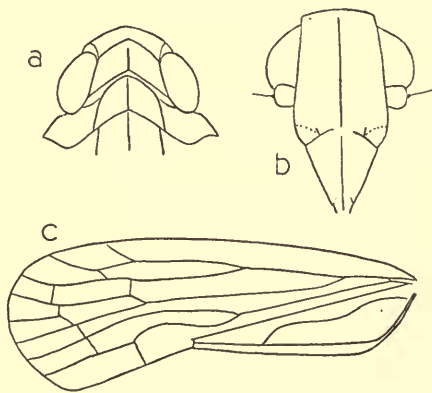


FIG. 44. *Plectoderoides maculatus* Matsumura.

a, vertex and pronotum; b, frons and clypeus; c, tegmen.

level of antennae thence strongly incurved, median carina weakly present, most distinct near base; clypeus rather short, medially and laterally carinate; antennae subovate, not sunk in a depression, eyes not covering pronotum. Pronotum moderately short, medially carinate, lateral carinae of disk convex, reaching hind margin, as long as median carina; mesonotum longer than vertex and pronotum combined, tricarinate; post-tibiae with a single spine basad of middle.

Tegmina with Sc+R fork level with Cur fork, clavus terminating distad of middle, Sc with two branches at apex, Cu1b rather prominently convex distad of fork.

The genus is Oriental and includes *P. maculatus* Matsumura (Fig. 44) and *P. formosanus* Matsumura. The figures are after Matsumura.

BENELLA Kirkaldy

1906. *Benella* Kirkaldy, *Bull. Hawaii. Sug. Ass. ent. Ser.* **1** (9):420. Haplotype, *Benella aliena* Kirkaldy, loc. cit.:420.

Head with eyes not as wide as pronotum. Vertex declivous, anterior margin carinate, shallowly convex, lateral margins straight, diverging basad, posterior margin angularly concave, median carina distinct; frons longer than broad, lateral margins slightly convex, diverging to below level of antennae thence incurved, disk slightly convex, not at all impressed distally, clypeus rather short, medially and laterally carinate; antennae subglobose, not sunk in a depression; eyes not covering pronotum laterad of disk. Pronotum moderately short, ventral margins of lateral lobes oblique; mesonotum longer than vertex and pronotum combined, tricarinate; post-tibiae with a single spine basad of middle.

Tegmina smooth, not granulate, with Sc+R fork about level with Cur fork, Curb not markedly convex distad of fork; veins thin and prominent; clavus terminating distad of middle.

The genus is Australian and includes only the type species. The presence of a pair of pallid bands on the frons may prove to be universal in the genus, but is not limited to *Benella*.

KOSALYA Distant

1906. *Kosalya* Distant, *Fauna Brit. Ind. Rhynch.* **3**:292. Haplotype, *Kosalya flavostrigata* Distant.

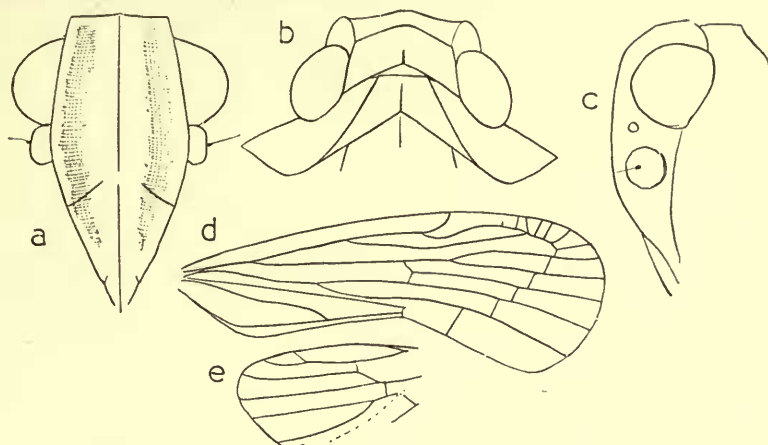
Head with eyes markedly narrower than pronotum. Vertex slightly declivous, broader across base than long in middle line (3:1), produced before eyes for about a third of their length, medially carinate, carina distinct in basal half, obsolete distally, anterior margin carinate, rounded subangulately through 130°, lateral margins straight, diverging basad, posterior margin excavate in an angle of 120°; frons slightly convex in profile, longer in middle line than broad (1.2:1), widest part broader than width at base (1.5:1), median carina percurrent, lateral margins carinate, convex distally, foliate laterad; clypeus moderately long, medially and laterally carinate, frons and clypeus longitudinally impressed on each side of middle line, rostrum with subapical segment shorter than apical; antennae ovate, not sunk in a depression; ocelli not touching eyes, eyes not covering pronotum. Pronotum moderately short, anterior margin of disk truncate, posterior margin angularly excavate, median carina present, lateral carinae of disk straight or slightly concave, each three times as long as median carina, pronotum laterad of disk inclined anteroventrally, ventral margins of lateral lobes angulate and oblique; mesonotum about twice as long as vertex and pronotum together, distinctly tricarinate; pro-tibiae shorter than pro-femora and trochanters, post-tibiae with a spine basad of middle and one distad of middle.

Tegmina with Sc+R fork slightly distad of Cur fork, M forking just basad of node, about seven apical areoles in Sc and R distad of stigma, M1+2 forked at level of stigma, clavus terminating at middle.

The genus is so far represented only by the type species.

***Kosalya flavostrigata* Distant**

(FIG. 45)

1906. *Kosalya flavostrigata* Distant, loc. cit.: 293, fig. 140.FIG. 45. *Kosalya flavostrigata*, Distant.*a*, frons and clypeus; *b*, vertex and pronotum; *c*, head in profile; *d*, tegmen; *e*, apex of tegmen

The figures are of the holotype. It is uncertain whether the bispinose condition of the post-tibiae is normal.

KAWANDA gen. n.

Head with eyes markedly narrower than pronotum. Vertex slightly declivous, broader across base than long in middle line (3:1), produced before eyes for slightly more than a fifth of their length, medially carinate except at apex, anterior margin carinate forming an angle of 150° at apex, lateral margins straight, diverging basad, posterior margin excavate in an angle of 143° ; frons moderately convex in profile, longer in middle line than broad (1.3:1), widest part wider than base (1.3:1), median carina percurrent, lateral margins carinate, convex, slightly foliate laterad distally; clypeus fully two-thirds length of frons in middle line, medially and laterally carinate; antennae subovate, not sunk in a depression; ocelli not touching eyes, eyes slightly excavate beneath, not extensively overlapping pronotum. Pronotum moderately short, anterior margin of disk subtruncate, posterior margin deeply concave, median carina present, lateral carinae of disk concave, not attaining posterior margin, each 3.4 times length of median carina, pronotum laterad of disk distinctly inclined anteroventrally, ventral margins of lateral lobes oblique; mesonotum about twice as long as vertex and pronotum combined, distinctly tricarinate; post-tibiae with a single spine basad of middle.

Tegmina elongate, Sc+R fork at same level as CuI fork, both basad of union of claval veins, M forked almost level with apex of clavus, nine apical areoles distad of stigma; clavus terminating at middle. Wings with R and M each two-branched, CuI three-branched.

Anal segment of female short. Posterior margin of seventh sternite very slightly convex, feebly produced on each side of middle, with a shallow concavity medially. Ovipositor with first valvulae quadrispinose, third valvulae subquadrate, slightly expanded distally, membranous portion of apical margin produced at its upper end.

Type species, *Kawanda luteovittata* sp. n.

***Kawanda luteovittata* sp. n.**

(FIG. 46)

Female: length, 4.2 mm.; tegmen, 6.3 mm.

Testaceous-fuscous; a round spot on gena below antennae near suture piceous, antennae and mesonotum ferruginous. Tegmina dull brown, a pale yellow band along whole of costal margin, extending across costal and subcostal cells.

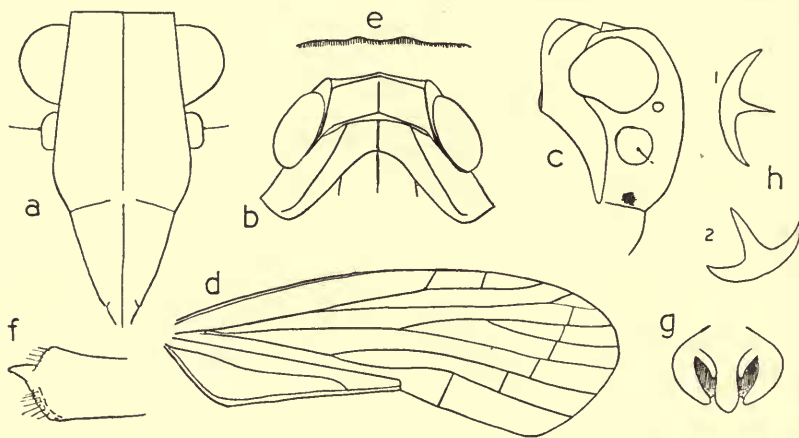


FIG. 46. *Kawanda luteovittata*, gen. et sp. n.

a, frons and clypeus; *b*, vertex and pronotum; *c*, frons in profile; *d*, tegmen; *e*, posterior margin of pregenital sternite; *f*, third valvula of ovipositor, lateral view; *g*, anal segment of female; *h*, (1) sclerite in vagina, (2) sclerite at entrance to bursa copulatrix; these sclerites are situated in relation to each other as shown.

First valvulae of ovipositor quadridentate with basal tooth short and the remainder relatively long. Bursa copulatrix furnished near entrance with a crescentic sclerite with a stout spine at middle nearly as long as each limb of crescent, a sclerite of similar shape in vagina.

Described from one female collected at Kawanda, Uganda, by T. H. C. Taylor (10 June 1941). Type in British Museum. *Kawanda* is distinguished by the shape of the head and by tegminal venation.

LANUVIA Stål

1866. *Lanuvia* Stål, *Hemipt. Africana*, 4:182.

Head with eyes slightly narrower than pronotum. Vertex not declivous or scarcely so, broader across base than long in middle line (1.6:1), produced before eyes for about a third of their length, median carina absent, disk depressed, anterior margin

carinate forming an angle of 135° at apex, lateral margins subparallel, straight, posterior margin truncate; frons moderately convex in profile, longer in middle line than broad (1.1:1), widest part wider than base (1.3:1), basal margin slightly excavate, median carina percurrent, lateral margins carinate, straight to below level of antennae, thence incurved to suture, strongly foliate laterally, disk of frons and clypeus depressed on each side between middle line and lateral margin; clypeus two-thirds length of frons, medially and laterally carinate; rostrum not attaining post-trochanters, antennae rather small, subovate, not sunk in a depression; ocelli not quite touching eyes, eyes not excavate beneath, moderately overlapping pronotum. Pronotum short, anterior margin of disk truncate, posterior margin excavate in an angle of 125° , median carina present, lateral carinae of disk concave, attaining hind margin or nearly so, each about three times as long as median carina, pronotum laterad of disk distinctly inclined anteroventrally, ventral margin of lateral lobes angulate and oblique; mesonotum about twice as long as vertex and pronotum combined, distinctly tricarinate; legs rather short, pro-tibiae subequal to pro-femora and pro-tibiae combined; post-tibiae with a single spine basad of middle.

Tegmina elongate, costal margin markedly convex at base, Sc+R fork slightly basad of Cu1 fork, level with or distad of union of claval veins; M forked level with stigma, nine apical areoles distad of stigma; clavus terminating distad of middle. Wings with R and M each two-branched, Cu1 three-branched.

Posterior margin of seventh abdominal sternite of female sinuate, transverse. Ovipositor with third valvulae subquadrate, apical margin convex-truncate, slightly oblique. Anal segment of female short, apical margin excavate. Bursa copulatrix furnished with a crescentic sclerite with a spine at middle.

Type species, *Lanuvia luteovittata* sp. n.

***Lanuvia luteovittata* sp. n.**

(FIG. 47)

Female: length, 5.0 mm.; tegmen, 6.8 mm.

Fuscous-piceous; basal half of frons fuscous, lateral carinae of vertex and of pronotal and mesonotal disks, a stripe from ocelli across mesopleurites, lateral marginal carinae of pronotum, and dorsal portion of tegulae, chrome yellow; base of abdomen dorsally testaceous or pale brown.

Tegmina fuscous-piceous; costal margin, an oblique stripe from base of costa to middle of M in corium, an oblique stripe from Sc+R fork to M fork, apical portion of Cu2 in clavus and pCu chrome yellow; veins otherwise piceous. Wings fuscous, veins darker.

Seventh abdominal sternite of female with posterior margin sinuate, shallowly convex in middle portion. Ovipositor with third valvulae subquadrate, apical margin oblique. Bursa copulatrix furnished at entrance with a crescentic sclerite bearing a long stout spine at middle.

Described from two females labelled 'Cameroons 1903-355'. Type in Brit. Mus. (N.H.).

The genus *Lanuvia* was characterized in tome iv of *Hemiptera Africana* without mention of species. No species has subsequently been placed in the genus. According to Opinion 46 of the International Commission on Zoological Nomenclature genera

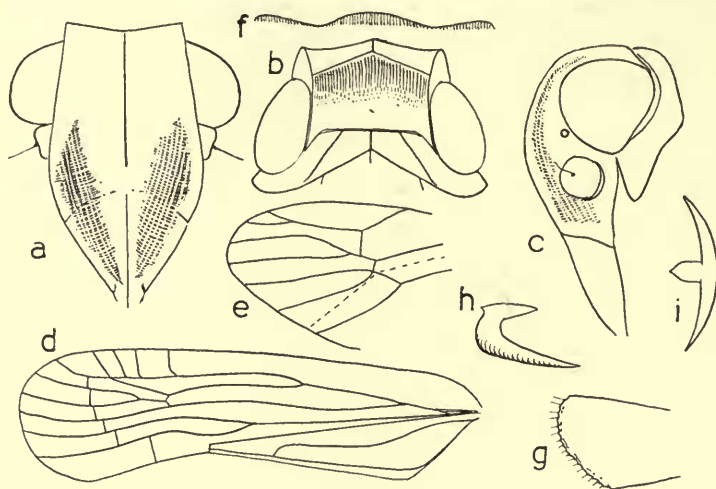


FIG. 47. *Lanuvia luteovittata*, sp. n.

a, frons and clypeus; b, vertex and pronotum; c, head in profile; d, tegmen; e, apex of wing; f, posterior margin of pregenital sternite; g, third valvula of ovipositor, lateral view; h, i, lateral and posterior views of spinose sclerite at entrance to bursa copulatrix.

described without mention of species are to be regarded as including all the species in the world which agree with the generic description. The above species agrees very well with the detailed description of the genus given by Stål; moreover, this and the following species are both known only from Africa. On these grounds the writer has selected *luteovittata* as the type species.

***Lanuvia octoguttata* sp. n.**

(FIG. 48)

Female: length, 5.1 mm.; tegmen, 6.3 mm.

Dark testaceous; a round spot on each lateral field of pronotum piceous; disk and lateral fields of mesonotum, median carina, base and apex of pro- and meso-tibiae, apex of post-tibiae and abdomen, fuscous.

Tegmina fuscous-piceous, costal area and costal cell testaceous-ferruginous, veins ferruginous; a slightly oblique elongate spot in cell Sc+R at basal third, another at apex of same cell, overlapping cell M slightly, a broad band overlying first claval vein, chrome yellow.

Posterior margin of seventh sternite transverse, middle portion shallowly excavate. Ovipositor with third valvulae subquadrate, apical margin truncate-convex, not oblique. Bursa copulatrix furnished with a crescentic sclerite with a stout spine at middle.

Described from two females, one taken at 4,800 ft., Mpanga forest, Toro, 13-23 November 1911, and Daro forest, Toro, 4,000-4,500 ft., 25-29 October 1911,

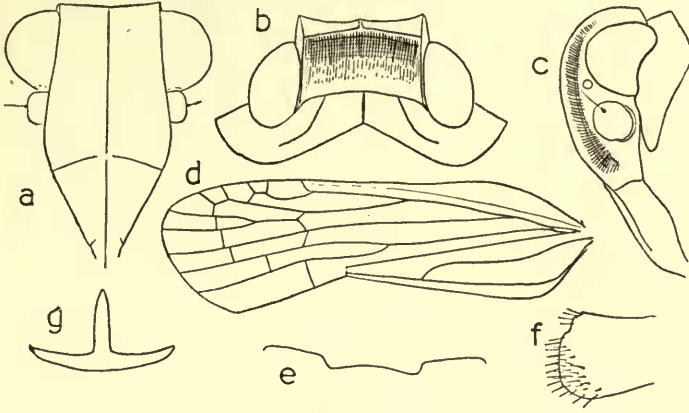


FIG. 48. *Lanuvia octoguttata*, sp. n.

a, frons and clypeus; b, vertex and pronotum; c, head in profile; d, tegmen; e, posterior margin of pregenital sternite of female; f, third valvula of ovipositor, lateral view; g, spinose sclerite at entrance to bursa copulatrix.

Uganda, by S. A. Neave, Brit. Mus. 1912-193. The markings distinguish the two species, while the median spine on the crescentic sclerite is shorter in *octoguttata* than in *luteovittata*.

CATONOIDES Metcalf

1938. *Catonoides* Metcalf, *Bull. Mus. comp. Zool. Harv.* **82**:376. Orthotype, *C. fusca* Metcalf.

Head with eyes slightly narrower than pronotum. Vertex not declivous or scarcely so, broader across base than long in middle line (about 2:1), produced before eyes for scarcely a fifth of their length, median carina distinct throughout, disk slightly depressed, anterior margin carinate, convex through an angle of approximately 110° , lateral margins carinate, short, diverging basad, posterior margin broadly excavate; frons moderately convex in profile, longer in middle line than broad (about 1.3:1), widest part wider than base (1.5:1), basal margin excavate, median carina percurrent, lateral margins carinate, straight or slightly concave to below level of antennae thence incurved to suture, slightly foliate laterad distally, disk of frons not depressed, clypeus about as long as frons in middle line, medially and laterally carinate, rostrum just attaining posterior trochanters, antennae subovate, not sunk in a depression, ocelli not touching eyes, eyes almost completely overlapping pronotum. Pronotum short, anterior margin of disk truncate, posterior margin broadly concave, median carina present, lateral carinae of disk concave, each about 1.6 times as long as median carina, attaining posterior margin, pronotum laterad of disk distinctly inclined anteroventrally, ventral margin of lateral lobes angulate and oblique; mesonotum more than twice as long as vertex and pronotum combined, distinctly tricarinate, carinae parallel; post-tibiae with a single spine basad of middle.

Tegmina moderately long (length-breadth 3.3:1), anterior margin slightly convex,

commissural margin forming a re-entrant angle of 158° at apex of clavus, Sc+R fork about level with Cu₁ fork or slightly basad, both about level with union of claval veins, M forked level with node or nearly so, nine apical areoles distad of stigma; clavus terminating at middle.

Catonoides fusca Metcalf

(FIG. 49)

1938. *Catonoides fusca* Metcalf, loc. cit.:377.

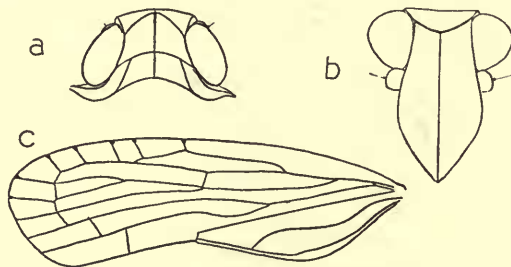


FIG. 49. *Catonoides fusca* Metcalf.

a, vertex and pronotum; b, frons and clypeus, anterodorsal view; c, tegmen.

The writer is indebted to Dr. J. C. Bequaert of the Museum of Comparative Zoology for the accompanying figures of the type.

PARACATONIA gen. n.

Head with eyes slightly narrower than pronotum, slightly declivous, broader across base than long in middle line (1.8:1), produced before eyes for slightly more than a third of their length, disk markedly depressed, medially carinate throughout, anterior margin carinate, forming an angle of 150° at apex, lateral margins straight, foliately carinate, diverging basad, posterior margin shallowly excavate; frons moderately convex in profile, longer in middle line than broad (1.2:1), widest part wider than base (1.6:1), median carina percurrent, lateral margins carinate, convex, slightly foliate obliquely; clypeus three-quarters as long as frons, medially and laterally carinate; rostrum reaching post-trochanters, apical segment longer than subapical, antennae subovate, not sunk in a depression; ocelli very narrowly separated from eyes, eyes unpigmented above antennae, considerably overlapping pronotum. Pronotum short, anterior margin of disk truncate, posterior margin concave through about 100° , median carina present, lateral carinae of disk straight or slightly concave, attaining hind margin, each more than four times as long as median carina, pronotum laterad of disk inclined anteroventrally, with indications of areoletts near posterior margin, two carinae on each side between eye and tegula, ventral margins of lateral lobes transverse or very slightly oblique, mesonotum about twice as long as vertex and pronotum combined, tricarinate, the carinae parallel; pro-tibiae as long as pro-femora with trochanters, post-tibiae with a single spine basad of middle.

Tegmina slightly more than three times as long as broad, Sc+R forking two-fifths from base, level with Cu₁ fork and union of claval veins, M forked at nodal line, eight

apical areoles distad of stigma, those of M two-thirds as long as the corresponding subapical cells; clavus terminating distad of middle. Wings with R simple, M two-branched, Cur three-branched.

Anal segment of male very short. Pygofer with medioventral process longer than broad, bifid: Anal segment of female short.

Posterior margin of seventh sternite of female transverse, shallowly concave at middle. Ovipositor with first valvulae armed dorsally with four small teeth and two apical spines, third valvulae subrhomboidal.

Type species, *Paracatonia securifalcata* sp. n.

***Paracatonia securifalcata* sp. n.**

(FIG. 50)

Male: length, 2.4 mm.; tegmen, 2.8 mm. Female: length, 2.6 mm.; tegmen, 3.0 mm.

Fuscous; frons with eight spots inside each lateral margin, a few small spots on each side of middle line and a large pair in distal quarter, pallid, a spot at each side basally on clypeus, vertex, and pronotum, except in depression, mesonotum with carinae, three pairs of spots and basally a pair of curved lines on disk, and two large spots on each lateral field, pallid. Tegmina mostly pale, veins pale, three small dark spots in costal area, a dark spot between Cura and Curb at level of apex of clavus, a row of dark spots between posterior claval vein and commissural margin fuscous; remainder of corium sparsely marked pale fuscous, membrane smoky-brown except on veins and a pale arcuate band across apical areoles. Wings infusate.

Anal segment of male short, anal foramen occupying most of dorsal surface, lateral margins in profile with a small distinct lobe near base. Genital styles in profile narrow basally, expanding distally into a rhomboidal lobe, eminence on dorsal margin distad of middle, followed proximally by a deep excavation, a short pointed process arising on inner face basally, directed mesally and posteriorly. Medioventral process of pygofer elongate, bifid, each limb directed laterally at apex.

Phallobase with a pair of lobes, in dorsal view narrowed and finger-like in apical quarter; ventrally a pair of spinose processes on each side, the basal processes arising one-quarter from base, directed laterally, the distal pair longer, arising two-thirds from base, curved outward and anteriorly. Aedeagal appendages strap-like, of equal length, abruptly narrowed in profile at about apical quarter, and bearing an oblique spine at the apex.

Anal segment of female short, deeply notched at middle of apical margin. Subvaginal plate with lateral sclerites rod-like, slightly converging dorsad, not meeting transverse sclerotization of ventral margin. Ventral lobes of first valvulae triangular, with inner margin straight, outer oblique, devoid of accessory lobes at base. First valvulae with four small teeth dorsally, the distad longest, and two larger curved apical teeth. Third valvulae in profile trapezoidal with apical margin produced into two lobes of unequal size, the dorsal larger. Bursa copulatrix with a large diverticulum, somewhat constricted near its mouth, ornamented with minute sclerotized

rings over entire surface: at entrance a large, stout, crescentic sclerotized bar, pointed at one end with a stout tooth projecting at middle of inner margin. Distad of this sclerite a larger, approximately hatchet-shaped sclerite with the limb pointed at each end and a short tooth at one angle of the quadrate plate.

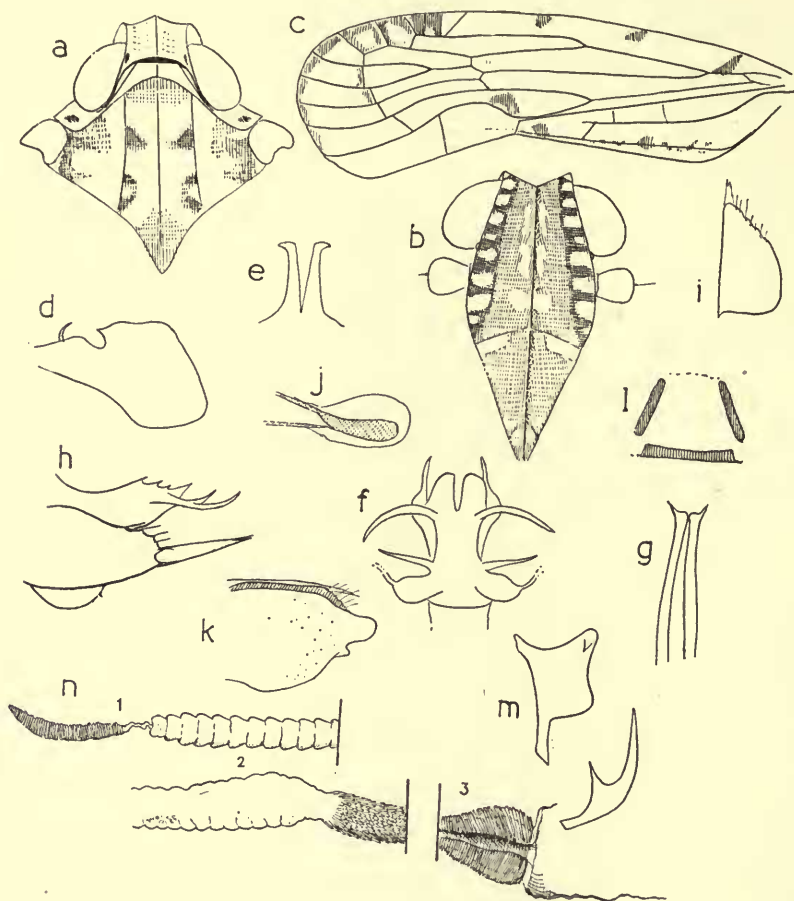


FIG. 50. *Paracatonia securifalcata*, gen. et sp. n.

a, vertex, pronotum and mesonotum; *b*, frons and clypeus; *c*, tegmen; *d*, left genital style; *e*, medioventral process of pygofer; *f*, aedeagus; *g*, apical portion of phallic appendages; *h*, first valvulae of ovipositor, lateral view; *i*, ventral lobe of first valvula; *j*, second valvula; *k*, third valvula; *l*, sclerites bordering subvaginal plate; *m*, sclerites at entrance to bursa copulatrix; *n*, (1), (2), (3) distal, mesal, and proximal portions of spermatheca.

Egg ovoid, approximately twice as long as broad, micropylar pole rather flattened, micropyle surrounded by a palisade of contiguous finger-like lobes.

Described from 16 males and 11 females taken by the writer at 1,000 ft. in mountain forest near Saltoun, Dominica, B.W.I. (5-11 June 1940). A single female taken at Dudmar, Grenada (20 October 1943) agrees well with the Dominican species and is regarded as conspecific.

AMBLYCRATUS Uhler

1895. *Amblycratus* Uhler, *Proc. Zool. soc. Lond.*:64. Haplotype, *Amblycratus pallidus* Uhler.
 1895. *Cionoderus* Uhler, loc. cit.:66. Haplotype, *Cionoderus lineatus* Uhler.

Vertex broader across base than long in middle (about 2:1), lateral margins straight, slightly converging anteriorly, anterior margin produced in an obtuse angle, approximately parallel to posterior margin, posterior margin shallowly excavate; disk slightly depressed, weakly carinate medially; frons in profile slightly curved, medially carinate, carina percurrent on clypeus, lateral margins almost straight and slightly diverging to below level of antennae, thence shallowly incurved to suture; clypeus marginally carinate; rostrum of male attaining hind trochanters, with its basal segment in lateral view twice as long as broad at apex. Pronotum short, disk broad, anteriorly transverse, posteriorly broadly emarginate, median and lateral carinae of disk distinct, latter twice as long as former, lateral areas behind eyes smooth; mesonotum tricarinate, lateral carinae almost parallel, slightly converging distally. Hind tibiae with a single minute spine at basad third. Tegmina three times as long as broad, anterior margin almost straight, apical margin broadly rounded, commissural margin forming a re-entrant angle of 158° at apex of clavus: Sc+R+M stalk as long as basal cell, Sc+R forked one-third from base, Sc forked at level of node, its distal branch simple to apex, R with two branches at margin, M forked at nodal line, with three branches at margin, Cu₁ forked at level of Sc+R fork, Cu_{1a} and Cu_{1b} simple to margin; six subapical and eight apical cells. Wings with Sc simple, R with two branches at margin, length of cell R₁ less than length of its stalk distad of R-M cross vein, M two-branched, Cu_{1a} branched basad of level of M fork, Cu_{1b} simple.

Anal segment of male in dorsal view broadly ovate, bilaterally symmetrical, anal foramen situated in basal half. Pygofer with lateral margins slightly sinuate, medioventral lobe slightly wider across base than long, distally rounded. Genital styles in profile subfusiform with an eminence on dorsal margin, basad of middle, bearing two broad pointed lobes directed anteriorly; a curved spine arising on inner face of style near base.

Anal segment of female broader than long (about 1.3:1), anal foramen large, anal style spatulate. Subvaginal plate more than twice as broad as long, sclerotized and pigmented over whole of surface, minutely shagreen in marginal areas. Ventral lobes of first valvulae relatively elongate, broadly elevated in a dome along axial line, first valvulae with six teeth on dorsal margin, third valvulae subquadrate, almost as broad as long. Bursa copulatrix ornamented with a pattern of very delicate and thin-walled rings, a strongly sclerotized and pigmented three-spined process, crescentic in outline, in wall near junction with vagina.

***Amblycratus pallidus* Uhler**

(FIG. 51)

1895. *Amblycratus pallidus* Uhler, loc. cit.:65.
 1895. *Cionoderus lineatus* Uhler, loc. cit.:66.

Medioventral process of pygofer almost semicircular. Genital styles in lateral view subovate with a bicuspidate lobe dorsally at basal quarter and a curved spine on

inner face near base. Aedeagus comprising dorsally a pair of submembranous sinuate lobes directed dorsally and posteriorly, and a pair of horizontal elongate-ovate laminae, laterally a pair of flattened lobes tapering gradually to a blunt apex, which is decurved, ventrally a keel bearing a straight spine directed ventro-posteriorly;

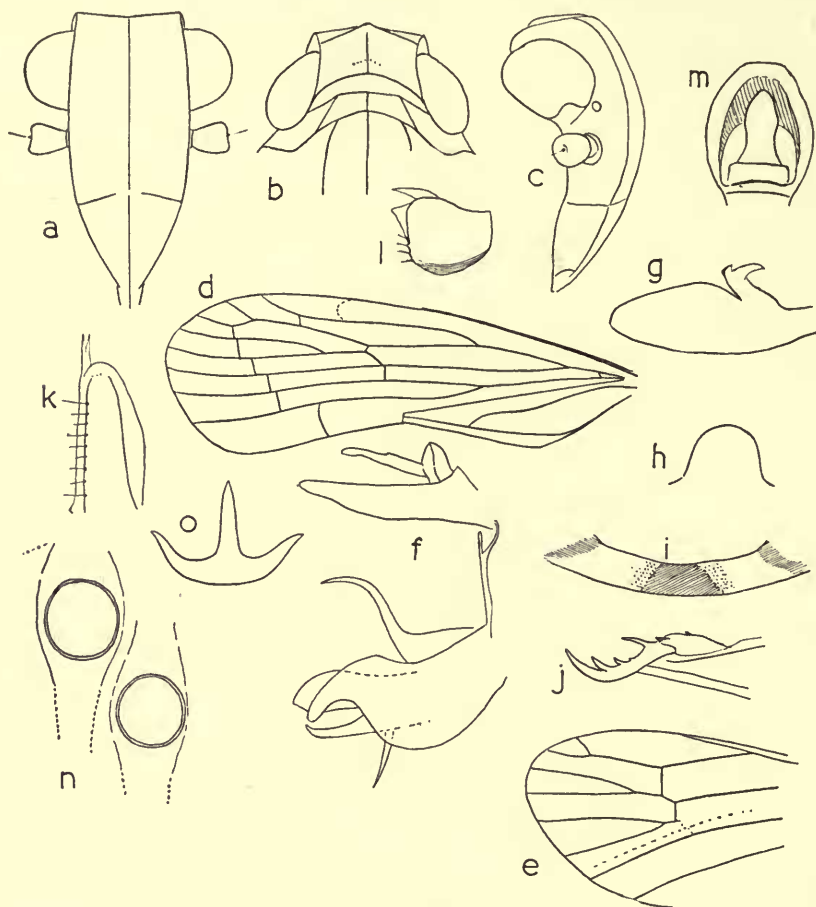


FIG. 51. *Amblycratus pallidus* Uhler.

a, frons and clypeus; *b*, vertex and pronotum; *c*, head in profile; *d*, tegmen; *e*, apex of wing; *f*, anal segment and aedeagus, lateral view; *g*, right genital style; *h*, medioventral process of pygofer; *i*, subvaginal plate; *j*, first valvula of ovipositor, lateral view; *k*, ventral lobe of first valvula; *l*, third valvula, lateral view; *m*, anal segment of male; *n*, portion of surface of bursa copulatrix; *o*, sclerite at entrance to bursa copulatrix.

appendages of phallus shagreened distally; the limbs suspending the aedeagus are pincer-like near the point of attachment.

Subvaginal plate trapezoidal, slightly shagreened at sides.

In addition to the holotypes of *A. pallidus* Uhler and *Cionoderus lineatus* Uhler and paratypes in the U.S. National Museum, the writer has examined a series of 3 males and 3 females taken by him in forest on Morne Garu and on a ridge at the head of the Cumberland Valley, St. Vincent, B.W.I. (25 August, 8 September 1941).

AGANDECCA White

1879. *Agandecca* White, *Ent. mon. Mag.* **15**:217. Haplotype, *A. annectens* White.

Head with eyes a little narrower than pronotum. Vertex not declivous except along middle line, broader across base than long in middle (about 3:1), produced before eyes for about half their length, median carina distinct, disk inclined downward on each side of median carina, anterior margin carinate forming an angle of 130° at apex, lateral margins straight or convex, slightly diverging basad, posterior margin broadly excavate; frons shallowly convex in profile, longer in middle line than broad (1.5:1), widest part wider than base (1.2:1), basal margin truncate with a transverse narrowly triangular callus between middle line and lateral margins, median carina percurrent, lateral margins carinate, straight to below level of antennae, thence incurved to suture, not at all foliate, disk not depressed; clypeus rather more than half length of frons, medially and laterally carinate; antennae subovate, not sunk in a depression, ocelli remote from eyes, eyes not excavate beneath, moderately overlapping pronotum. Pronotum moderately short, laterally short, anterior margin of disk truncate, posterior margin concave, median carina present, lateral carinae of disk concave, not attaining hind margin, each two-and-a-half times as long as median carina, pronotum laterad of disk distinctly inclined anteroventrally, ventral margin of lateral lobes transverse or slightly oblique; mesonotum twice as long as vertex and pronotum combined, distinctly tricarinate, carinae more or less parallel; post-tibiae with a single spine basad of middle.

Tegmina moderately long, costal margin somewhat convex, Sc+R fork about level with Cu₁ fork, both slightly distad of union of claval veins, M forked level with stigma, nine apical areoles distad of stigma; clavus terminating at middle of tegmen. Wings with R two-branched near apex, M two-branched, Cu₁ three-branched.

Agandecca annectens White

(FIG. 52)

1879. *Agandecca annectens* White, loc. cit.:218.

The figures are of the holotype. The genus is known only from New Zealand and at present includes only this species.

APHYPIA Melichar

1908. *Aphyphia* Melichar, *Acta Soc. ent. Bohem.* **5**:6. Haplotype, *Aphyphia longipennis* Melichar.

Head with eyes narrower than pronotum. Vertex scarcely declivous except along middle line, broader across base than long in middle (2:1), produced before eyes for about a third of their length, median carina distinct, disk inclined downward laterad on each side of median carina, anterior margin carinate forming an angle of 110° at apex, lateral margins straight, diverging basad, posterior margin broadly excavate, frons moderately convex in profile basally, almost straight distally, longer in middle line than broad (1.4:1), widest part wider than base (1.2:1), basal margin truncate or slightly excavate, with a transverse triangular callus of moderate width between

middle line and lateral margins, median carina distinct, raised on a broad median ridge, percurrent, lateral margins carinate, straight to below level of antennae, thence only slightly incurved, foliate laterad in distal half, disk of frons and clypeus longitudinally depressed on each side of middle line; clypeus fully three-quarters

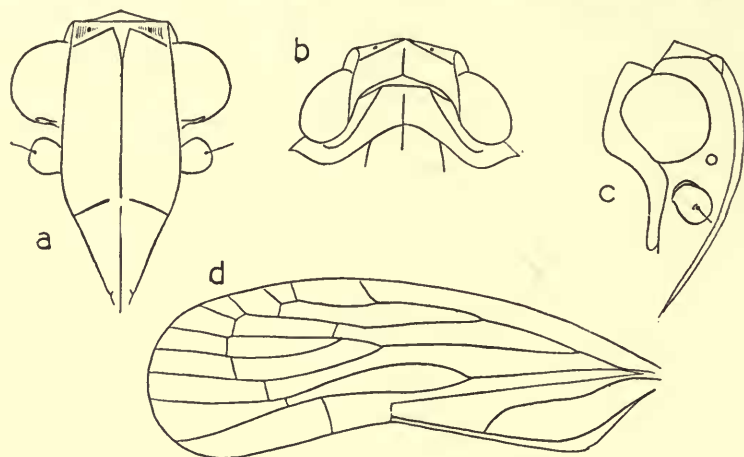


FIG. 52. *Agandecca annectens* White.

a, frons and clypeus; b, vertex and pronotum; c, head in profile; d, tegmen.

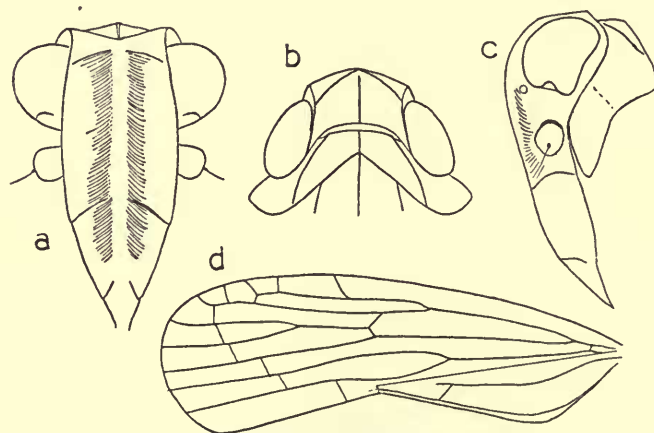


FIG. 53. *Aphypia longipennis* Melichar.

a, frons and clypeus; b, vertex and pronotum; c, head in profile; d, tegmen.

length of frons, medially and laterally carinate, antennae subovate, not sunk in a depression, ocelli not quite touching eyes, eyes distinctly excavate beneath, not much overlapping pronotum. Pronotum moderately short, laterally rather long, anterior margin of disk truncate, posterior margin subangulately concave, median carina present, lateral carinae of disk straight or slightly convex, distinctly attaining hind margin, each three times as long as median carina, pronotum laterad of disk distinctly inclined anteroventrally, a carina on each side between eye and tegula,

ventral margin of lateral lobes angulate and oblique; mesonotum fully twice as long as vertex and pronotum combined, distinctly tricarinate, carinae more or less parallel; tegulae not carinate; post-tibiae with a single spine basad of middle.

Tegmina relatively long (3.2:1), costal margin slightly convex, Sc+R fork about level with Cu1 fork, both near level of union of claval veins, M forked level with apex of clavus, nine apical areoles distad of stigma; clavus terminating at middle of tegmen.

***Aphypia longipennis* Melichar**

(FIG. 53)

1908. *Aphypia longipennis* Melichar, loc. cit.:6.

The figures are of a specimen in the British Museum.

The genus differs from *Agandecca*, which it resembles, in the proportions of vertex and frons, in the length of the pronotum, the structure of its disk, and the shape of the ventral margin of its lateral lobes. The genus is confined to Africa and is monotypic.

PROSAGANDECCA gen. n.

Head with eyes slightly narrower than pronotum. Vertex not declivous, broader across base than long in middle (2:1), produced before eyes for a third of their length, median carina present only basally, disk depressed, anterior margin carinate forming an angle of 145° at apex, lateral margins carinate, straight, scarcely diverging basad, posterior margin broadly excavate; frons moderately convex in profile, longer in middle than broad (1.3:1), widest part wider than base (1.4:1), basal margin truncate, devoid of callus, median carina distinct, percurrent, lateral margins carinate, convex, moderately incurved below level of antennae, slightly foliate laterad distally, disk of frons not depressed; clypeus about three-quarters length of frons, medially and laterally carinate, rostrum with subapical segment shorter than apical, antennae subglobose, not sunk in a depression, ocelli narrowly separated from eyes, eyes distinctly excavate beneath, moderately overlapping pronotum. Pronotum short, anterior margin of disk truncate, posterior margin deeply concave, median carina present, lateral carinae of disk straight, attaining hind margin, each four times as long as median carina, pronotum laterad of disk strongly inclined anteroventrally, ventral margin of lateral lobes angulate and oblique; mesonotum fully twice as long as vertex and pronotum combined, tricarinate; post-tibiae with a single spine basad of middle.

Tegmina three times as long as broad, costal margin very slightly convex, Sc+R fork about level with Cu1 fork, both distad of union of claval veins, M forked level with node, eight apical areoles distad of stigma; clavus terminating at middle of tegmen.

Anal segment of male short, tapering convexly to apex. Medioventral process of pygofer quadrate.

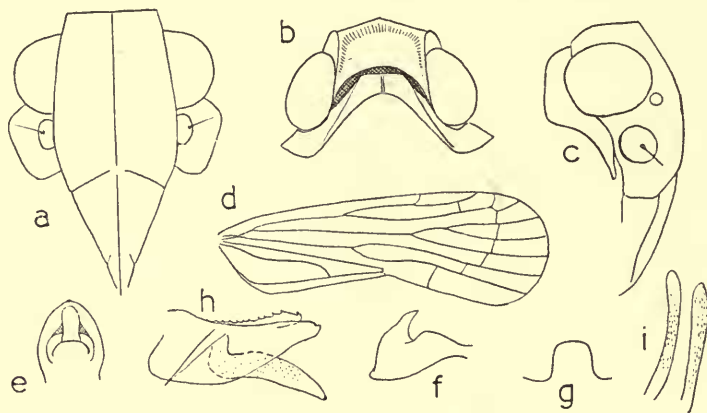
Type species, *Prosagandecca straminea* sp. n.

Prosagandecca straminea sp. n.

(FIG. 54)

Male: length, 2.5 mm.; tegmen, 4.0 mm.

Testaceous; pronotum, carinae of mesonotum, legs and abdomen stramineous. Tegmina translucent, stramineous. Wings hyaline, veins testaceous.

FIG. 54. *Prosagandecca straminea*, gen. et sp. n.

a, frons and clypeus; b, vertex and pronotum; c, head in profile; d, tegmen;
e, anal segment of male; f, right genital style; g, medioventral process of pygofer;
h, aedeagus; i, apical portion of phallic appendages.

Genital styles convex on ventral margin, sinuate dorsally, produced dorsally in a pointed process apically.

Aedeagus with phallobase comprising a pair of dentate lobes dorsally, a pair of lateral lobes tapering distally with dorsal margin straight and ventral margin convex, ventrally a pair of moderately broad lobes tapering distally, markedly shagreened.

Described from one male taken at Njala, Sierra Leone, by E. Hargreaves (8 December 1930). The genus is distinguished from *Agandecca* and *Aphyphia* by the shape of the vertex, pronotum, and frons and by the absence of a basal transverse callus on the frons.

PARAGANDECCA gen. n.

Head with eyes a little narrower than pronotum. Vertex not declivous, broader across base than long in middle (1.9:1), produced before eyes for a quarter of their length, median carina absent, disk slightly depressed, anterior margin carinate forming an angle of 130° at apex, lateral margins carinate, straight, scarcely diverging basad, posterior margin almost transverse with a slight medial notch; frons shallowly convex in profile, longer in middle line than broad (1.4:1), widest part wider than base (1.6:1), basal margin shallowly angularly excavate, median carina distinct, percurrent, a series of three obsolete transverse ridges, interrupted by median carina on disk, in basal quarter, lateral margins carinate, straight or shallowly concave, diverging to below level of antennae thence incurved, slightly foliate laterad in distal

part, disk of frons not depressed; clypeus about half as long as frons, medially and laterally carinate, rostrum with subapical segment shorter than apical, antennae small, subglobose, not sunk in a depression, ocelli narrowly separated from eyes, eyes slightly excavate beneath, moderately overlapping pronotum.

Pronotum distinctly short, anterior margin of disk truncate, posterior margin shallowly concave, median carina present, an impression on disk on each side of middle line, lateral carinae of disk straight or shallowly concave, diverging basad, attaining hind margin, each twice as long as median carina, pronotum laterad of disk strongly inclined anteroventrally, ventral margin of lateral lobes transverse; mesonotum longer than vertex and pronotum together, tricarinate, anterior part of disk convex, basal part markedly depressed, tegulae not carinate, post-tibiae with a single spine basad of middle.

Tegmina nearly three times as long as broad, costal margin slightly convex, Sc+R fork level with Cur fork, both slightly distad of union of claval veins, M forked level with node, eight apical areoles distad of stigma; clavus terminating slightly basad of middle of tegmen. Wings with R simple to apex, M two-branched, Cur three-branched.

Posterior margin of seventh sternite of female sinuate, slightly emarginate medially. Ventral lobes of first valvulae subtriangular, tapering distally. Bursa copulatrix armed with a trispinose sclerite at entrance.

Type species, *Paragandecca longibursata* sp. n.

***Paragandecca longibursata* sp. n.**

(FIG. 55)

Female: length, 3.1 mm.; tegmen, 3.9 mm.

Fuscous-piceous; carinae of vertex, a V-shaped mark in middle of frons and six short transverse bands at each margin, a transverse band on clypeus, carinae of pronotum and of anterior half of mesonotum, together with a transverse band joining their bases, posterolateral margins, lower side of thorax, apex of pro-femora, meso-femora, and post-tarsi, testaceous-stramineous.

Tegmina fuscous-piceous, with a callus at node, C and Sc+R reddish-brown, apical margin tinged with red; most of costal cell and a large spot basad of node, a few cross veins in corium and apical line of veins in membrane ivory, veins otherwise testaceous. Wings smoky, margin tinged with red.

First valvulae of ovipositor bearing four long oblique spines, the apical pair slightly exceeding the others. Third valvulae with apical margin oblique. Bursa copulatrix three times as long as broad with a single sclerite at entrance, this sclerite crescentic with a long spine at middle.

Described from one female collected at Camp 2 (2,000 ft.), Sabron, Cyclops Mountains, Dutch New Guinea, by L. E. Cheesman (July 1936). Brit. Mus. 1936-271. Type in Brit. Mus. (N.H.).

Paragandecca differs from *Agandecca* and *Aphyphia* in the absence of a basal transverse callus on the frons, and in the shape and proportions of the frons, vertex, and pronotum. It is separated from *Prosagandecca* by the shape of the frons, the differently

shaped pronotal disk, by the transverse ventral margins of the lateral pronotal lobes, and by the relative size of the antennae. The genus contains at present only the above species.

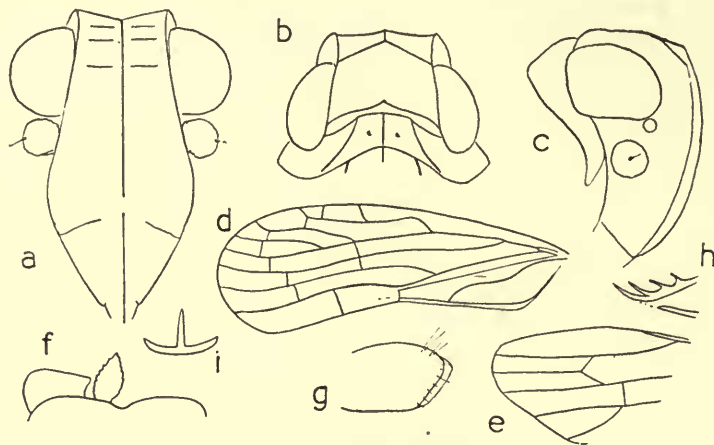


FIG. 55. *Paragandecca longibursata*, gen. et sp. n.

a, frons and clypeus; b, vertex and pronotum; c, head in profile; d, tegmen; e, apex of wing; f, posterior margin pregenital sternite, ventral lobe of right first valvula, ventral portion of eighth segment, right side; g, third valvula; h, spines of first valvula; i, sclerite at entrance to bursa copulatrix.

CHRONEBA Stål

1859. *Chroneba* Stål, *Berl. ent. Z.* 3:320. Haplotype, *Chroneba pallifrons* Stål.

Head with eyes much narrower than pronotum. Vertex in profile convex, not declivous, shorter across base than long in middle line (1:4), produced before eyes for two-thirds of their length, median carina foliate, percurrent, disk hollowed out on each side of middle, anterior margin angulate, not carinate, vertex rounding into frons, lateral margins straight, parallel, foliately raised, posterior margin deeply excavate; frons straight in profile, longer in middle line than broad (2.2:1), widest part wider than base (4:1), basal margin not distinct, median carina prominent, percurrent, lateral margins prominently carinate, foliate laterad, sinuately expanding to below level of antennae, thence incurved to suture; clypeus about three-quarters length of frons, medially and laterally carinate, antennae subovate, not sunk in a depression, ocelli remote from eyes, eyes excavate beneath, moderately overlapping pronotum. Pronotum very short, laterally longer than in middle, disk relatively very small, anterior margin strongly convex, produced to fit into emargination of vertex, posterior margin angularly excavate, median carina present, lateral carinae of disk sinuate, attaining hind margin, each twice as long as median carina, pronotum laterad of disk moderately inclined anteroventrally, a pair of carinae on each side between eye and tegula, ventral margin of lateral lobes angulate and oblique, mesonotum longer than vertex and pronotum together, tricarinate; pro-tibiae as long as pro-femora with trochanters; post-tibiae with a single spine basad of middle.

Tegmina relatively long, 3.2 times longer than wide, costal margin slightly convex,

sutural margin forming a re-entrant angle of 155° at apex of clavus, Sc + R fork distad of Cu1 fork, level with apex of clavus, M fork level with node, nine apical areoles distad of stigma; clavus terminating distad of middle of tegmen. Wings with R simple, M two-branched, Cu1 three-branched.

***Chroneba pallifrons* Stål**

(FIG. 56)

1859. *Chroneba pallifrons* Stål, loc. cit.: 320.

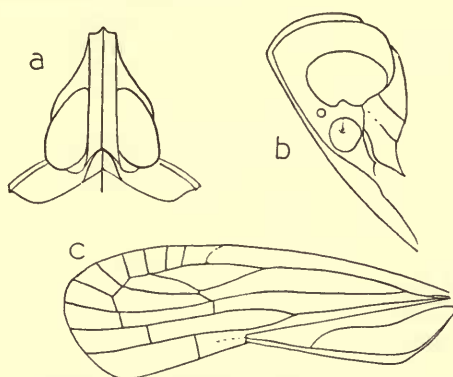


FIG. 56. *Chroneba pallifrons* Stål.

a, vertex and pronotum; b, head in profile; c, tegmen.

Figures are given of a specimen in the British Museum. The degree of stenogenesis of the head in *Chroneba* is unparalleled in the family, though it is possible to see in *Parakosalya* Distant a transitional phase from the normal condition as exemplified by *Akotropis* Matsumura. The genus is known only from Ceylon.

TANGINA Melichar

1903. *Tangina* Melichar, *Hom. Fauna Ceylon*: 44. Haplotype, *Tangina bipunctata* Melichar.

Head with eyes slightly narrower than pronotum. Vertex broader than long in middle line (about 1.5:1), not declivous, scarcely produced before eyes, median carina distinct, anterior margin carinate, convex, lateral margins straight, subparallel or scarcely diverging basally, carinate, posterior margin broadly excavate, frons shallowly convex in profile, longer in middle line than broad (1.5:1), widest part wider than base (1.5:1), median carina percurrent, lateral margins carinate, straight except when near suture, disk not depressed; clypeus more than three-quarters length of frons, medially and laterally carinate, antennae subglobose, not sunk in a depression, eyes moderately overlapping pronotum. Pronotum moderately short, scarcely as long as vertex in middle line, anterior margin of disk shallowly convex, posterior margin concave, median carina present, lateral carinae of disk concave, attaining posterior margin near side, each fully twice as long as median carina, pronotum laterad of disk not inclined anteroventrally; mesonotum scarcely twice as long as vertex and pronotum combined, distinctly tricarinate, lateral carinae slightly diverging basad; post-tibiae with a single spine basad of middle.

Tegmina moderately long, three times longer than wide, anterior margin slightly convex, sutural margin forming a re-entrant angle of 150° , Sc+R fork obscure, about level with Cur fork, latter level with union in clavus, M forked at level of node apparently eight apical areoles distad of stigma; clavus terminating at or slightly distad of middle of tegmen. Wings with R simple to apex, M two-branched, Cur three-branched.

***Tangina bipunctata* Melichar**

(FIG. 57)

1903. *Tangina bipunctata* Melichar, loc. cit.: 44, pl. 2, figs. 19, a, b, c.

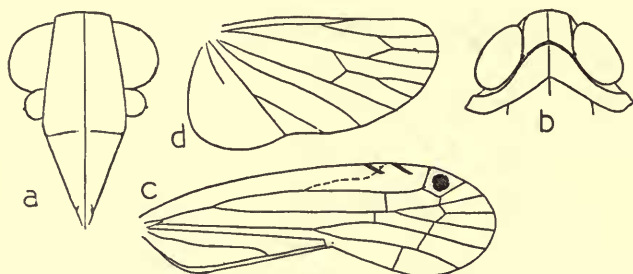


FIG. 57. *Tangina bipunctata* Melichar.

a, frons and clypeus; b, vertex and pronotum; c, tegmen with Sc added in broken line according to Melichar's correction; d, wing.

The figures are after Melichar. A species before the writer has laterobasal facets on frons, a rostrum only reaching mesotrochanters, and concave lateral discal pronotal carinae reaching hind margin sublaterally; Cur in tegmen forks level with union of claval veins. This species runs to *Nephelia* but differs in shape of frons.

CLUSIVIVUS Distant

1917. *Clusivius* Distant, *Trans. Linn. Soc. Lond. (Zool.)* **17**: 277. Haplo type, *Clusivius spectabilis* Distant.

Head with eyes distinctly narrower than pronotum. Vertex not declivous, slightly broader across the base than long in middle line (1.1:1), produced before eyes for a third of their length, median carina prominent, percurrent, disk slightly hollowed out on each side of middle, anterior margin angulate, not carinate, vertex rounding into frons, lateral margins concave, carinate and slightly raised, slightly diverging basad, posterior margin shallowly angularly excavate; frons convex in profile, scarcely longer in middle line than broad, widest part wider than base (1.5:1), basal margin not distinct, apparent margin angulately convex, median carina prominent, percurrent, lateral margins carinate, slightly foliate laterad, distinctly convex, expanding to level of antennae, thence incurved to suture; clypeus exceeding three-quarters length of frons, medially and laterally carinate, rostrum with subapical segment shorter than apical, antennae subglobose, not sunk in a depression, ocelli remote from eyes, eyes not excavate beneath, scarcely overlapping pronotum. Pronotum

moderately convex, posterior margin correspondingly concave, median carina distinct, lateral carinae of disk obsolete, pronotum laterad of disk not inclined anteroventrally, ventral margin of lateral lobes angulate and oblique; mesonotum longer than vertex and pronotum together, tricarinate, lateral carinae straight, diverging basad, pro-tibiae longer than pro-femora, post-tibiae with a single spine basad of middle.

Tegmina 2.8 times longer than wide, costal margin slightly convex, posterior margin forming a re-entrant angle of 160° at apex of clavus, Sc+R fork about level with Cur fork, both basad of apex of clavus and distad of union of claval veins, M fork just basad of node, seven apical areoles distad of stigma; clavus terminating basad of middle of tegmen. Wings with R simple, M two-branched, Cur three-branched.

***Clusivius spectabilis* Distant**

(FIG. 58)

1917. *Clusivius spectabilis* Distant, loc. cit.: 277, pl. 49, fig. 15.

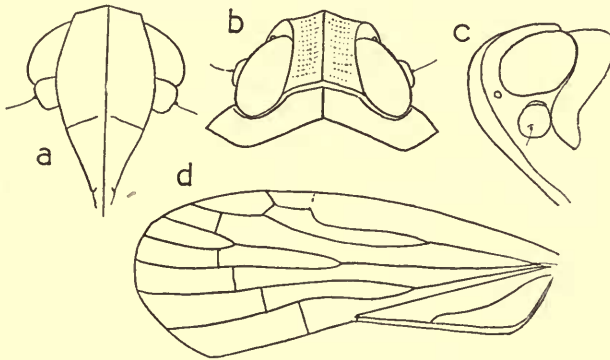


FIG. 58. *Clusivius spectabilis* Distant.

a, frons and clypeus; b, vertex and pronotum; c, head in profile; d, tegmen.

The figures are of the holotype. *Clusivius*, known only from the Seychelles, is distinguished by the shape of the vertex, frons, pronotum, and by the tegminal venation and the relatively short clavus. In the type species the tegulae are carinate and relatively large.

PARAKOSALYA Distant

1917. *Parakosalya* Distant, *Trans. Linn. Soc. Lond. (Zool.)* **17**: 287. Orthotype, *Parakosalya insularis* Distant.

Head with eyes distinctly narrower than pronotum. Vertex longer in middle line than broad (1.1:1), not declivous, produced before eyes for half their length, median carina prominent, disk hollowed out on each side of middle, apparent anterior margin angulate, not carinate, vertex rounding into frons, lateral margins straight, prominent, diverging basad, posterior margin obtusely angulately excavate; frons slightly convex in profile, longer in middle line than broad (1.6:1), widest part wider than

base (2.3:1), apparent basal margin sinuate, subangulate medially, median carina prominent, subfoliate, percurrent, lateral margins carinate, slightly foliate laterad, sinuately expanding to below level of antennae, thence incurved to suture, suture strongly impressed; clypeus three-quarters of length of frons, medially and laterally carinate, convex except at base, rostrum with subapical segment shorter than apical, antennae subglobose, not sunk in a depression, ocelli remote from eyes, eyes not excavate beneath, moderately overlapping pronotum. Pronotum moderately short, distinctly short laterad of disk, disk relatively large, anterior margin truncate, posterior margin angulately excavate (about 115°), median carina prominent, an impression on disk on each side of it, lateral carinae of disk straight, diverging basad, attaining hind margin, each twice as long as median carina, pronotum laterad of disk markedly inclined anteroventrally, no carina between eye and tegula, ventral margin of lateral lobes slightly oblique; mesonotum longer than vertex and pronotum together, tricarinate; pro-tibiae subequal to pro-femora, post-tibiae with a single spine just basad of middle.

Tegmina about 2.7 times as long as wide, costal margin slightly convex, M forked near level of node, nine apical areoles distad of stigma; clavus terminating slightly basad of middle of tegmen. Wings with R simple, M two-branched, Cu_a three-branched.

***Parakosalya insularis* Distant**

(FIG. 59)

1917. *Parakosalya insularis* Distant, loc. cit.:287.

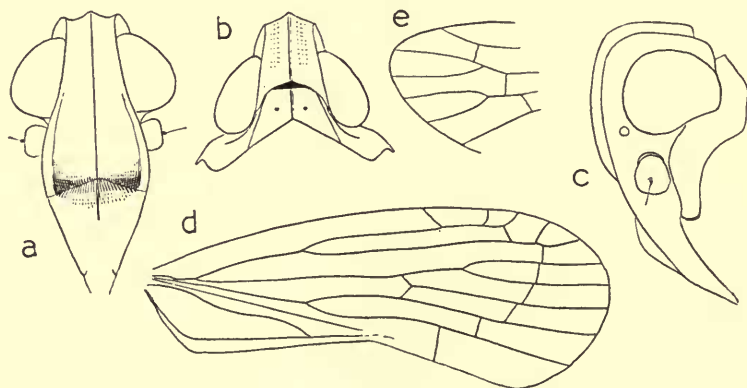


FIG. 59. *Parakosalya insularis* Distant.

a, frons and clypeus; b, vertex and pronotum; c, head in profile; d, tegmen; e, apex of wing.

The figures are of Distant's holotype. The genus is known only from the Seychelles.

CNIDUS

1866. *Cnidus* Stål, *Hemipt. Africana* 4:185. Haplotype, *Cixius variegatus* Stål.

Head with eyes distinctly narrower than pronotum. Vertex slightly declivous, as long in middle line as broad across base, produced before eyes for half their length,

median carina present, prominent near base, disk hollowed, anterior margin carinate, rounded, a large but not distinct triangular areolet at each latero-apical angle of head almost in same plane as gena, lateral margins carinate, foliate, convex, rather closely approximated distally, diverging basad, posterior margin truncate; frons slightly convex in profile, a little longer in middle line than broad (1.1:1), widest part three times width at base, basal margin convex-truncate, median carina prominent near base, percurrent, lateral margins carinate, distinctly foliate laterad, convex, diverging to below level of antennae, thence incurved to suture; clypeus fully three-quarters of length of frons in middle line, medially and laterally carinate, rostrum with subapical segment equal to apical, antennae with second segment subglobose, sunk in a depression, ocelli touching eyes, eyes ovate, excavate beneath, only slightly overlapping pronotum. Pronotum moderately short, distinctly shorter behind eyes than in middle line, anterior margin of disk truncate, posterior margin angulately excavate (120°), median carina distinct, lateral carinae of disk slightly convex, each 1.3 times length of median carina, attaining hind margin, pronotum laterad of disk not inclined anteroventrally, with three shallow depressions on each side, two distinct carinae at each lateral margin between eye and tegula, ventral margin of lateral pronotal lobes slightly oblique; mesonotum longer than vertex and pronotum combined, tricarinate; tegulae not carinate; pro-tibiae shorter than pro-femora with trochanters, post-tibiae with a single spine basad of middle.

Tegmina slightly more than three times as long as broad, costal margin slightly convex, sutural margin forming a re-entrant angle of 155° at apex of clavus, Sc+R fork level with Cur fork, both slightly distad of union of claval veins, M forked a little basad of level of node, eight or nine areoles around apical margin distad of stigmal cell; clavus terminating distad of middle of tegmen.

***Cnidus variegatus* Stål**

(FIG. 60)

1855. *Cixius variegatus* Stål, *Öfvers. Vetensk. Akad. Förh. Stockh.* **12**:92.

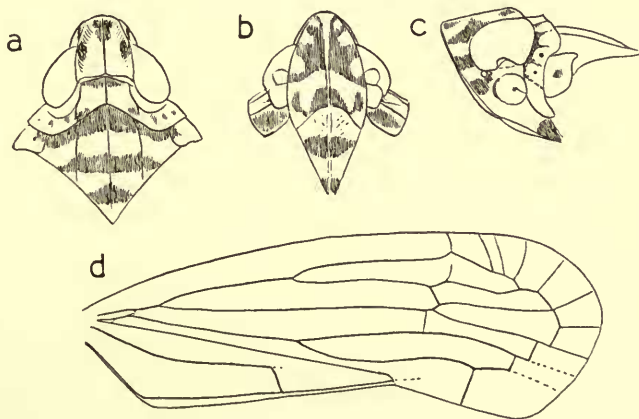


FIG. 60. *Cnidus variegatus* Stål.

a, vertex, pronotum, and mesonotum; b, frons and clypeus; c, head in profile; d, tegmen.

Posterior margin of seventh sternite of female slightly convex in middle.

The figures are of the holotype. One tegmen is damaged and the other crumpled so that the apical venation of Cu₁ was not seen, but the basal venation suggests that it is of the normal type.

Cnidus differs from *Magadha* and *Catonia* in the forking of M₁+2 and in the angle of inclination of the latero-apical facets on the vertex.

PARACCLUSIVIVUS gen. n.

Head with eyes distinctly narrower than pronotum. Vertex slightly declivous, as long as broad or slightly longer, produced before eyes for half their length, strongly medially carinate, anteriorly devoid of a transverse carina, curving into frons, apex of head in dorsal view angulately convex (about 130°), lateral margins straight, diverging basad, posterior margin shallowly concave; frons shallowly convex in profile, longer in middle line than broad (about 1.4:1), widest part wider than base (1.9:1), median carina percurrent, lateral margins carinate, foliate laterad; clypeus fully three-quarters as long as frons, medially and laterally carinate, disk, frons, and clypeus slightly concave on each side of middle line, rostrum with subapical segment longer than apical (about 1.2:1), antennae subglobose, not sunk in a depression, ocelli not touching eyes, eyes not extensively overlapping pronotum. Pronotum moderately long, anterior margin of disk convex-truncate, posterior margin angulately excavate (120°), median carina present, lateral carinae of disk straight, each 1.4 times as long as median carina, pronotum laterad of disk slightly inclined antero-ventrally, two carinae at each lateral margin between eye and tegula, ventral margins of lateral lobes angulate and oblique; mesonotum longer than vertex and pronotum combined, tricarinate; pro-tibiae about as long as pro-femora and trochanters, post-tibiae with a single spine at middle.

Tegmina three times as long as broad, Sc+R forked about one-third from base, level with Cu₁ fork and union of claval veins, M₁+2 forking slightly distad of level of apex of clavus, about eight apical areoles in Sc and R distad of stigma, five in M and Cu, clavus terminating at or distad of middle of tegmina.

Type species, *Paraclusivivus tristis* sp. n.

Paraclusivivus tristis sp. n.

(FIG. 61)

Female: length, 4.0 mm.; tegmen, 5.4 mm.

Fuscous-piceous; carinae of frons, sides of head above eye, lateral margin of pronotum and lateral pronotal carinae, dorsal half of tegulae and hind legs testaceous; a line on genae subparallel to front of eye piceous. Tegmina with corium fuscous-piceous, membrane fuscous, veins concolorous; wings fuscous, veins concolorous.

Posterior margin of seventh abdominal sternite of female shallowly convex through an angle of 150°. Subvaginal plate about seven times as broad as deep, longer on ventral than on dorsal margin. First valvulae of ovipositor with ventral lobes short, broader than long; third valvulae subquadrate with an eminence on dorsal margin.

Bursa copulatrix beset with feebly-sclerotized rings, and furnished near entrance with a crescentic sclerite bearing a spine at middle.

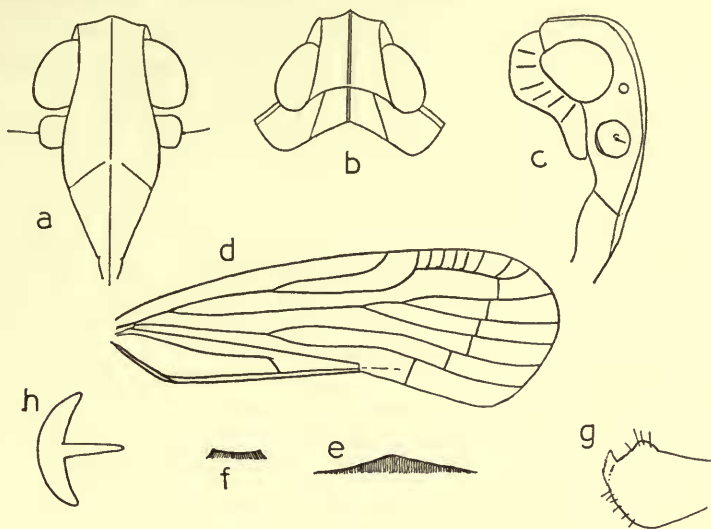


FIG. 61. *Paracclusivius tristis*, gen. et sp. n.

a, frons and clypeus; b, vertex and pronotum; c, head in profile; d, tegmen; e, posterior margin of pregenital sternite of female; f, subvaginal plate; g, third valvula of ovipositor, lateral view; h, sclerite near entrance to bursa copulatrix.

Described from two females in British Museum, one taken at Njala, Sierra Leone (E. Hargreaves, 14 October 1932) and the other in the Gold Coast (A. E. Evans, 1913). *Paracclusivius* differs from *Akotropis* in having the subapical segment of the rostrum longer than the apical and in having two carinae at the lateral margins of the pronotum and no carina between vertex and frons, as well as in its larger size.

AKOTROPIS Matsumura

1914. *Akotropis* Matsumura, *Ann. hist.-nat. Mus. hung.* **12**:270. Logotype, *Akotropis fumata* Matsumura.

1941. *Ballonymus* Jacobi, *Zool. Jb. (Syst.)* **74**:295. Orthotype, *Ballonymus anticus* Jacobi, loc. cit.:296.

Head with eyes distinctly narrower than pronotum. Vertex broader across base than long in middle line (1.1:1), not or scarcely declivous, produced before eyes for rather less than half their length, median carina prominent, elevated, anterior margin angulate, not carinate, subangulately rounding into frons, lateral margins carinate, straight, or slightly concave, diverging basad, posterior margin angulately excavate (about 140°); frons slightly convex in profile, longer in middle line than broad (1.5:1), widest part wider than base (1.4:1), basal margin not distinct, median carina prominent, percurrent, lateral margins carinate, slightly foliate laterad distally, expanding to below level of antennae, thence incurved to suture; clypeus about two-thirds length of frons, medially and laterally carinate, antennae subovate, about as long as eyes are wide, not sunk in a depression, genae broad, ocelli remote from eyes,

eyes not excavate beneath, only slightly overlapping pronotum. Pronotum moderately short, not quite as long behind eyes as in middle line, anterior margin of disk truncate-convex, posterior margin angulately excavate (130°), median carina present, lateral carinae of disk straight or slightly convex, diverging basad, attaining hind margin, each about 1.6 times as long as median carina, pronotum laterad of disk only moderately inclined anteroventrally, ventral margins of lateral lobes angulate and oblique; mesonotum longer than vertex and pronotum together, tricarinate; protibiae slightly exceeding pro-femora and trochanters, or subequal; post-tibiae with a single spine basad of middle.

Tegmina 2.6 times as long as wide, costal margin slightly convex, sutural margin forming a re-entrant angle of about 155° at apex of clavus, Sc+R fork and Cu1 fork at same level, both slightly distad of union of claval veins, M fork just basad of level of node, eight apical areoles distad of stigma: clavus terminating basad of middle of tegmen. Wings with R simple, M two-branched, Cu1 three-branched.

***Akotropis fumata* Matsumura**

(FIG. 62)

1914. *Akotropis fumata* Matsumura, loc. cit.: 270, fig. 4.

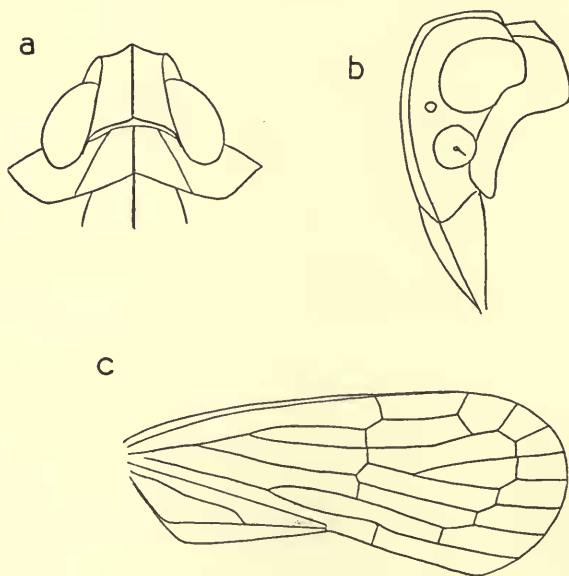


FIG. 62. *Akotropis fumata* Matsumura.
a, vertex and pronotum; b, head in profile; c, tegmen.

The figures are of a specimen in the British Museum. *Akotropis* differs from *Parakosalya* and *Clusivius* in the shape of the vertex and pronotum. It appears to be nearest to the former, but, apart from the above character, is separated from it by the absence

of a deeply impressed frontoclypeal suture and a distinctly less tumid clypeus. The genus, as so far known, is Oriental.

KOLOPTERA Metcalf

1938. *Koloptera* Metcalf, *Bull. Mus. comp. Zool. Harv.* **82**:371. Orthotype, *Koloptera callosa* Metcalf.

Head with eyes narrower than pronotum. Vertex longer in middle line than broad across base (1.5:1), not declivous, produced before eyes for nine-tenths of their length, median carina distinct, anterior margin rounded, carinate, lateral margins straight or slightly sinuate, diverging basad, posterior margin angulately excavate (110°); frons more or less straight in profile, longer in middle line than broad (1.6:1), widest part wider than base (2.2:1), basal margin convex, median carina distinct, percurrent, lateral margins carinate, sinuate to level of antennae then foliately expanded laterad and incurved to suture; clypeus about three-fifths of length of frons, medially and laterally carinate, antennae subglobose, slightly concealed below eyes, ocelli just touching eyes, eyes excavate beneath, not overlapping pronotum, a horizontal carina on genae between eyes and anterior margin. Pronotum moderately short, almost as long behind eyes as in middle line, anterior margin convex, posterior margin correspondingly concave, median carina present, lateral carinae of disk straight, diverging basad, attaining hind margin, each slightly longer than median carina (1.1:1), pronotum laterad of disk not inclined anteriorly, three supernumerary carinae on each side, lateral margins bicarinate, ventral margin of lateral lobes oblique; mesonotum only slightly longer than vertex and pronotum combined, tricarinate, but median carina obsolete on basal third; pro-tibiae as long as pro-femora with trochanters; post-tibiae with a single spine basad of middle.

Tegmina about three times as long as broad, costal margin slightly convex, sutural margin forming a re-entrant angle of 158° at apex of clavus, Sc+R fork distinctly basad of Cur fork, about level with union of claval veins, Cur fork basad of apex of clavus, Curb distinctly convex distad of apex of clavus, M fork level with node, R, M, and Cura converging to nodal line, a fold extending inward from node across stigmal cell, with a small callus in basal portion and a large callus in distal portion of cell, first apical areole distad of this also with a callus, six apical areoles following this cell; clavus terminating markedly distad of middle.

Koloptera longiceps (Fowler) comb. n.

(FIG. 63)

1904. *Helicopter longiceps* Fowler, *Biol. cent.-Amer. Rhynch. Hom.* **1**:107, pl. 11, figs. 17, a, b.

1938. *Koloptera callosa* Metcalf, *Bull. Mus. comp. Zool. Harv.* **82**:372.

The writer has seen both types and is unable to separate them. Specimens differing in no appreciable particular from the Central American series have been taken by the writer in Trinidad, B.W.I. The species *callosa* was erected in the belief (*vide* pl. 11, fig. 17, of the *Biologia*) that Fowler's species did not possess the transverse nodal fold: this fold, however, is present in all the *Biologia* material of *longiceps* in the British Museum. The figures given above are of Fowler's type.

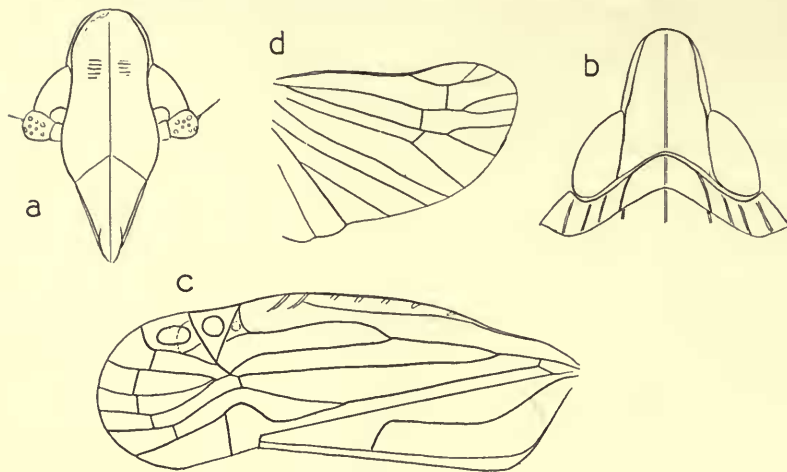


FIG. 63. *Koloptera longiceps* (Fowler).
a, frons and clypeus; b, vertex and pronotum; c, tegmen; d, wing.

CALlichLAMYS Kirkaldy

1907. *Callichlamys* Kirkaldy, *Bull. Hawaii. Sug. Ass. ent. Ser.* **3**:116, 120.
Logotype, *Callichlamys muiri* Kirkaldy.

Head with eyes rather narrower than pronotum. Vertex horizontal, longer in middle line than broad across base (2.3:1), produced before eyes for at least their length, median carina distinct, disk slightly hollowed out on each side, anterior margin carinate and slightly calloused, almost semi-circularly rounded, lateral margins carinate, slightly convex, diverging posteriorly as far as anterior margin of eyes then parallel, posterior margin transverse with a slight median notch; frons straight in profile, longer in middle line than broad (1.8:1), widest part wider than base (3:1), basal margin convex, median carina distinct, calloused at base, percurrent, lateral margins carinate sinuately expanding to level of antennae thence incurved to suture, slightly foliate at level of antennae, disk of frons not depressed; clypeus short, slightly less than half length of frons, flat, laterally carinate, median carina obscure, subapical segment of rostrum longer than apical, antennae subglobose, not sunk in a depression, ocelli remote from eyes, eyes narrowly oval, distinctly excavate beneath, not overlapping pronotum. Pronotum moderately short, almost as long behind eyes as in middle line, anterior margin of disk truncate, posterior margin angulately excavate, median carina present, lateral carinae of disk shallowly convex, each twice as long as median carina, pronotum laterad of disk not inclined anteroventrally, lateral margin carinate between eye and tegula, ventral margin of lateral pronotal lobes slightly oblique; mesonotum shorter than vertex and pronotum combined, tricarinate, carinae parallel, tegulae obsoletely carinate; pro-tibiae shorter than pro-femora and trochanters, post-tibiae with a single spine basad of middle.

Tegmina three times as long as broad, costal margin slightly convex, sutural margin forming a re-entrant angle of 160° at apex of clavus, Sc+R fork slightly basad

of CuI fork and about level with union of claval veins, M forked level with node, seven apical areoles distad of stigma; clavus terminating slightly distad of middle of tegmen. Wings with R simple, M two-branched, CuI three-branched.

***Callichlamys muiri* Kirkaldy**

(FIG. 64)

1907. *Callichlamys muiri* Kirkaldy, loc. cit.: 120, pl. 9, figs. 20, 21.

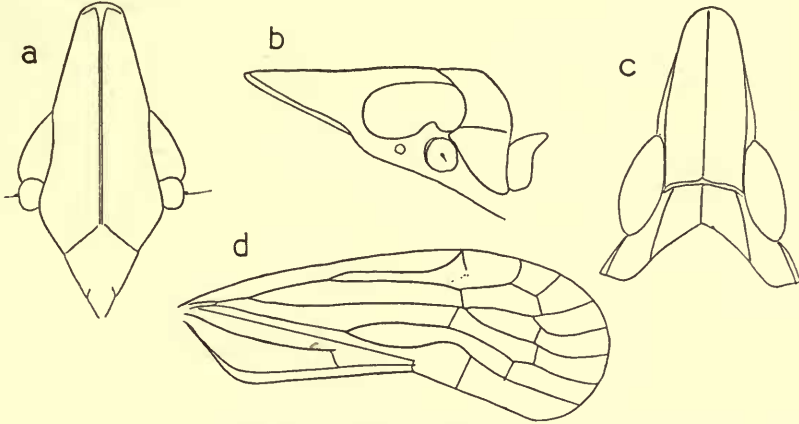


FIG. 64. *Callichlamys muiri* Kirkaldy.

a, frons and clypeus; b, head in profile; c, vertex and pronotum; d, tegmen.

The figures are of a paratype in the British Museum. *Callichlamys* is readily recognizable by the shape of the vertex and frons. Its affinities, to judge by external characters, would seem to lie with *Callinesia* and perhaps with *Caristianus*. The genus is so far known only from the Fiji Islands.

KARDOPOCEPHALUS Metcalf

1938. *Kardopocephalus* Metcalf, *Bull. Mus. comp. Zool. Harv.* 82: 379.

Orthotype, *Kardopocephalus lineatus* Metcalf.

Head with eyes markedly narrower than pronotum. Vertex horizontal, longer in middle line than broad across base (2.8:1), produced before eyes for slightly less than twice their length, median carina present only in basal third, disk deeply hollowed out, anterior margin carinate, acutely rounded, lateral margins carinate, gradually diverging basad, posterior margin subrectangularly excavate; frons longer in middle line than broad (2.5:1), widest part wider than base (6:1), basal margin conical, median carina distinct, percurrent, lateral margins carinate, slightly sinuately expanding to below level of antennae thence abruptly incurved to suture, disk markedly depressed; clypeus short, less than half length of frons, medially and laterally carinate, antennae small, subglobose, partly concealed below eyes and behind lateral margins of frons, eyes excavated beneath, not overlapping pronotum.

Pronotum moderately long, longer behind eyes than in middle line, anterior margin of disk acutely convex, posterior margin rectangularly excavate, median carina

present, lateral carinae of disk convex, attaining hind margin, each almost twice as long as median carina, pronotum laterad of disk not at all inclined anteroventrally, three supernumerary carinae behind eyes, lateral margins carinate; mesonotum as long as vertex and pronotum combined, tricarinate; tegulae carinate; post-tibiae with spine obsolete.

Tegmina three times as long as broad, costal margin slightly convex, Sc+R fork about one-third from base, Cur fork level with union of claval veins, M forking about level with node, stigmal area with about four cells, two callosities present in cells distad of this area, R, M, and Cura subparallel, not converging to nodal line; clavus terminating distad of middle of tegmen.

Kardopocephalus lineatus Metcalf

(FIG. 65)

1938. *Kardopocephalus lineatus* Metcalf, loc. cit.: 380.

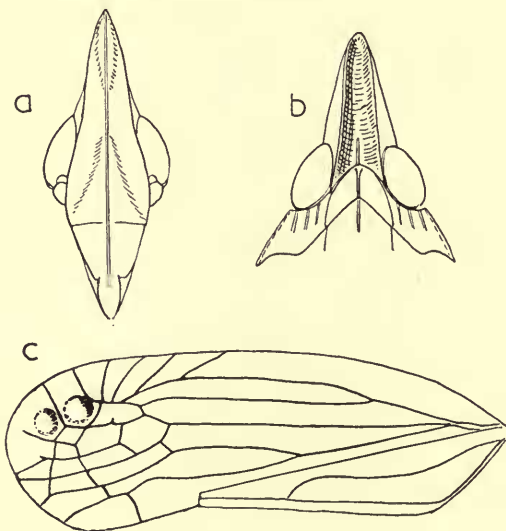


FIG. 65. *Kardopocephalus lineatus* Metcalf.
a, frons and clypeus; b, vertex and pronotum; c, tegmen.

The writer has not seen material of this species and the above is based on the original description and figures. The genus is as yet known only from Central America; its affinities would seem to lie with *Koloptera*.

PARATANGIA Melichar

1903. *Paratangia* Melichar, *Hom. Fauna Ceylon*: 46. Logotype, *Paratangia notata* Melichar, loc. cit. 46.

Head with eyes narrower than pronotum. Vertex not or slightly declivous, broader across base than long in middle line (1.3:1), produced before eyes for about half their length, median carina present in basal half only, disk slightly depressed, anterior

margin carinate, strongly convex, lateral margins subfoliately carinate, convex, diverging basad, posterior margin concave with a slight median notch; frons almost straight in profile, longer in middle line than broad (1.1:1), widest part wider than base (3:1) basal margin truncate, with a triangular transverse callus on each side of middle, median carina distinct, thickened basad, percurrent, lateral margins carinate, strongly diverging to below level of antennae thence strongly incurved to suture, so that frons and clypeus together appear rhomboidal, carinae foliately produced laterad at level of antennae, disk of frons not depressed; clypeus fully three-quarters length of frons, laterally carinate, median carina weak or obsolete, rostrum with subapical segment longer than apical, antennae relatively prominent, subglobose, not sunk in a depression, ocelli touching eyes, eyes not markedly excavated beneath, moderately overlapping pronotum.

Pronotum short, much shorter behind eyes than in middle line, anterior margin of disk angulate-truncate, posterior margin subrectangularly excavate, median carina present, lateral carinae of disk straight or shallowly concave, attaining hind margin, each slightly more than twice length of median carina, pronotum laterad of disk strongly inclined anteroventrally, ventral margin of lateral lobes angulate and oblique, a weak carina between eyes and tegulae; mesonotum longer than vertex and pronotum together; tricarinate, tegulae not carinate; pro-tibiae shorter than pro-femora and trochanters; post-tibiae with a single spine close to middle.

Tegmina three times as long as broad, costal margin slightly convex, Sc+R fork, Cura fork and union of claval veins at same level, M forked nearly level with node, eight apical areoles distad of stigma; clavus terminating at middle of tegmen. Wings with R simple, M two-branched, Cura three-branched.

***Paratangia* sp.**

(FIG. 66)

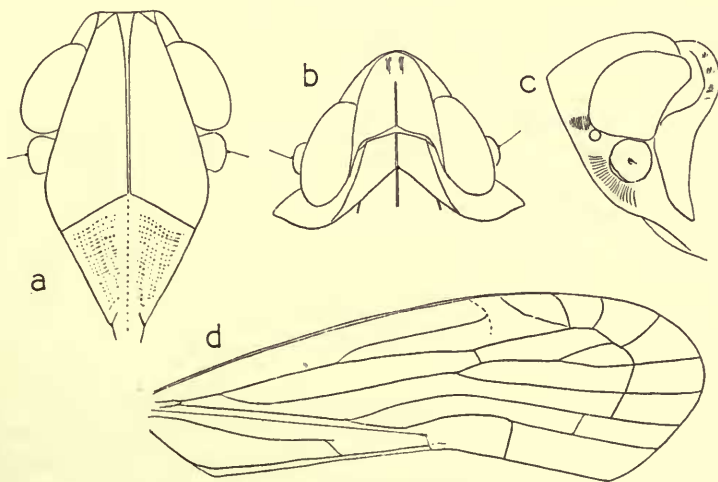


FIG. 66. *Paratangia* sp.

a, frons and clypeus; b vertex and pronotum; c, head in profile; d, tegmen.

The genus is distinguished by the shape of the frons, vertex, pronotum, and by the tegminal venation, and at present includes two described species, *notata* Mel. and *marginata* Mel. The figures are of an apparently undescribed species in the British Museum.

BETATROPIS Matsumura

1914. *Betatropis* Matsumura, *Ann. hist.-nat. Mus. hung.* **12**:274. Orthotype, *Betatropis formosana* Matsumura.

Head with eyes a little narrower than pronotum. Vertex not declivous, at least as long in middle as broad across base, sometimes much longer, produced before eyes for at least three-fifths of their length, median carina present near base, disk depressed, anterior margin carinate, acutely rounded, lateral margins carinate, convex, diverging basad, posterior margin deeply concave; frons almost straight in profile, longer in middle line than broad (about 2:1), widest part wider than base (about 4:1), basal margin convex, median carina distinct, percurrent, lateral margins carinate, straight and diverging to below level of antennae thence incurved to suture, slightly foliate laterad distally, disk of frons slightly inclined on each side of median carina; clypeus short, about half length of frons, medially and laterally carinate, rostrum with subapical segment shorter than apical, antennae subglobose, not sunk in a depression, ocelli remote from eyes, eyes not excavate beneath, slightly overlapping pronotum.

Pronotum rather short, shorter behind eyes than in middle line, anterior margin of disk truncate-convex, posterior margin subrectangularly excavate, median carina present, lateral carinae of disk straight, diverging basad, attaining hind margin, each about three times as long as median carina, pronotum laterad of disk only slightly inclined anteroventrally, with supernumerary carinae behind each eye, lateral margins bicarinate, ventral margin of lateral pronotal lobes angulate and oblique; mesonotum longer than vertex and pronotum combined, if only slightly so, tricarinate, lateral carinae straight, diverging basad, tegulae not carinate; pro-tibiae as long as pro-femora and trochanters, post-tibiae with a single spine basad of middle.

Tegmina three times as long as broad, costal margin slightly convex, Sc+R fork slightly distad of Cux fork, latter nearly level with union of claval veins, M forked at level of nodal line, eight apical areoles distad of stigma, Curb not deeply convex distad of apex of clavus, clavus terminating distad of middle of tegmen. Wings with R simple, M two-branched, Cux three-branched.

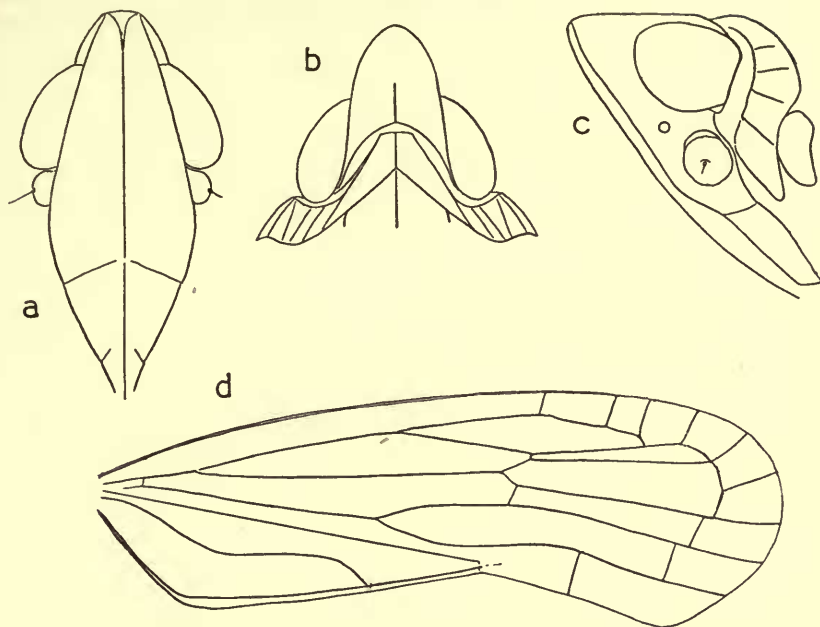
Betatropis formosana Matsumura

1914. *Betatropis formosana* Matsumura, loc. cit.:275.

In this species the vertex is nearly twice as long in middle line as broad across base. *Betatropis* is distinguished by the shape of the frons, vertex, and pronotum and by the tegminal venation. It is known only from the Orient, and is distinguished from the Indian *Caristianus* by the structure of the pronotum and by the tegminal venation, as well as by the position of the ocelli and the shape of the eyes.

Betatropis horishana Matsumura

(FIG. 67)

1914. *Betatropis horishana* Matsumura, loc. cit.: 276.FIG. 67. *Betatropis horishana* Matsumura.

a, frons and clypeus; b, vertex and pronotum; c, head in profile; d, tegmen.

The vertex in this species is only as long as wide. The two species listed are all that are at present included in the genus.

CARISTIANUS Distant

1916. *Caristianus* Distant, *Fauna Brit. Ind. Rhynch.* 6:63. Orthotype, *Caristianus indicus* Distant.

Head with eyes distinctly narrower than pronotum. Vertex slightly declivous, longer in middle than broad across base (1.3:1), produced before eyes for about half their length, median carina present, obsolete distally, disk strongly depressed, anterior margin carinate, strongly convex, lateral margins carinate, straight, diverging basad, posterior margin transverse; frons moderately convex in profile, longer in middle line than broad (about 1.8:1), widest part about three times as wide as base, basal margin convex-truncate, median carina distinct, percurrent, lateral margins carinate, sinuately diverging to level of antennae then gradually incurved to suture, rather obliquely foliate, disk of frons not depressed; clypeus more than half as long as frons, medially and laterally carinate, rostrum with subapical segment shorter than apical, antennae subglobose, not sunk in a depression, ocelli touching eyes, eyes distinctly excavate beneath, only slightly overlapping pronotum.

Pronotum moderately short, about as long behind eyes as in middle line, anterior

margin of disk truncate, posterior margin angulately excavate (120°), median carina present, lateral carinae of disk straight, diverging basad, attaining hind margin, each not quite twice as long as median carina, two incomplete carinae between eye and tegula, pronotum laterad of disk slightly inclined anteroventrally, ventral margin of lateral lobes slightly oblique; mesonotum longer than vertex and pronotum together, tricarinate, lateral carinae straight, weakly divergent, tegulae not carinate; post-tibiae with a single spine basad of middle.

Tegmina three times as long as broad, costal margin slightly convex, Sc+R fork near basal quarter, basad of union of claval veins, M forked level with node, Cu₁ fork basad of apex of clavus and distad of union of claval veins, seven apical areoles distad of stigma; clavus terminating distad of middle.

***Caristianus indicus* Distant**

(FIG. 68)

1916. *Caristianus indicus* Distant, loc. cit.:63.

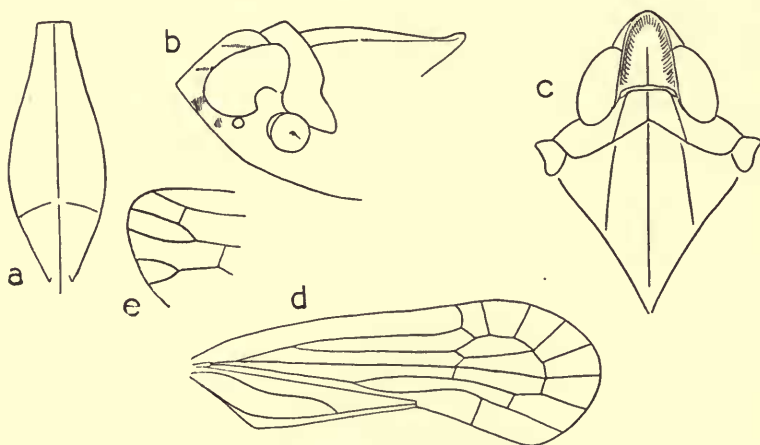


FIG. 68. *Caristianus indicus* Distant.

a, frons and clypeus; b, head in profile; c, vertex, pronotum, and mesonotum; d, tegmen; e, apex of wing.

The figures are of Distant's holotype. *Caristianus* is distinguished by the shape of the frons, vertex, pronotum, and by the tegminal venation. The genus is known only from Ceylon and Sarawak.

***DEFERUNDA* Distant**

1906. *Majella* Kirkaldy, *Bull. Hawaii. Sug. Ass. ent. Ser.* 1, 9:421. Haplotype, *Majella majella* Kirkaldy, *ibid.*:421 (nom. praeocc.).

1912. *Deferunda* Distant, *Ann. Mag. nat. Hist.* (8) 9:186. Haplotype, *Deferunda stigmatica* Distant.

1914. *Okatropis* Matsumura, *Ann. hist.-nat. Mus. hung.* 12:272. Orthotype, *Okatropis rubrostigma* Matsumura, loc. cit.:273.

1948. *Majellana* Metcalf, *Smith Coll. Gen. Cat. Hem.*, 4(10):63 (nom. nov. for *Majella* Kirkaldy).

Head with eyes a little narrower than pronotum. Vertex not declivous, longer in middle line than broad across base (1.4:1), produced before eyes for about half their

length, median carina present only near base, disk markedly depressed, anterior margin carinate, acutely convex, lateral margins foliate, convex, diverging basad, posterior margin transverse; frons shallowly convex in profile, longer in middle line than broad (1.3:1), widest part wider than base (5:1), basal margin convex, median carina present only in distal half, lateral margins straight, strongly foliate obliquely in basal half, less so distally, diverging to below level of antennae thence incurved to suture, disk of frons depressed in basal third, or apparently so on account of deeply foliate margins; clypeus fully three-quarters length of frons, medially and laterally carinate, subapical segment of rostrum as long as apical, antennae subovate, not sunk in a depression, ocelli touching eyes, eyes excavate beneath, scarcely overlapping pronotum.

Pronotum moderately short, almost as long behind eyes as in middle line, anterior margin of disk convex-truncate, posterior margin concave in an angle of about 100° , median carina present, lateral carinae of disk straight, diverging basad, attaining hind margin, each 2.2 times as long as median carina, pronotum laterad of disk moderately inclined anteroventrally, ventral margin of lateral pronotal lobes markedly angulate and oblique; mesonotum longer than vertex and pronotum combined; tricarinate; pro-tibiae shorter than pro-femora and trochanters, post-tibiae with a single spine basad of middle.

Tegmina three times as long as broad, costal margin scarcely convex, Sc+R fork apparently simple to nodal line, Cu₁ fork level with union of claval veins, M forked level with node, Cu₂ deeply convex distad of claval apex, six apical areoles distad of stigma; clavus terminating distad of middle.

***Deferunda stigmatica* Distant**

(FIG. 69)

1912. *Deferunda stigmatica* Distant, loc. cit.: 186.

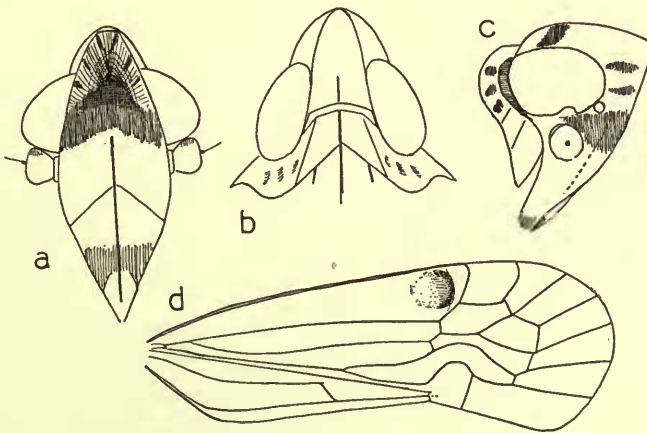


FIG. 69. *Deferunda stigmatica* Distant.

a, frons and clypeus; b, vertex and pronotum; c, head in profile; d, tegmen.

The figures are of Distant's type. A topotype of *Majella majella* Kirk and a specimen of *Okatropis rubrostigma* Mats. have been compared with it and are unquestionably congeneric. The genus is readily distinguishable by the extreme foliation of the basal portion of the lateral carinae of the frons and by the tegminal venation.

KURANDELLA gen. n.

Head with eyes distinctly narrower than pronotum. Vertex not or scarcely declivous, broader across base than long in middle line (1.2:1), produced before eyes for about half their length, median carina distinct only in basal half, disk depressed, anterior margin carinate, convex in an angle of about 120°, lateral margins elevated, subfoliate, moderately diverging basad, posterior margin broadly concave; frons shallowly convex in profile, longer in middle line than broad (1.7:1), widest part wider than base (2.3:1), basal margin truncate or shallowly excavate, median carina distinct, percurrent, lateral margins convex, diverging to below level of antennae thence moderately incurved to suture, slightly foliate obliquely, disk of frons not depressed; clypeus short, about two-fifths length of frons, medially and laterally carinate, antennae subglobose, not sunk in a depression, ocelli very narrowly separated from eyes, eyes not excavate beneath, only slightly overlapping pronotum.

Pronotum distinctly short, about as long behind eyes as in middle line, anterior margin of disk convex, posterior margin rectangulately excavate, median carina present, lateral carina obscure or obsolete, pronotum laterad of disk not inclined anteroventrally except where overlapped by eyes, two carinae between eye and tegula, ventral margin of lateral pronotal lobes angulate and oblique; mesonotum longer than vertex and pronotum combined, tricarinate; pro-tibiae equal to pro-femora with trochanters, post-tibiae with a single spine basad of middle.

Tegmina nearly three times as long as broad, costal margin slightly convex, Sc+R fork about level with Cur fork and union of claval veins, M forked level with stigma; clavus terminating distad of middle.

Type species, *Kurandella nigromaculata* sp. n.

Kurandella nigromaculata sp. n.

(FIG. 70)

Female: length, 3.8 mm.; tegmen, 5.0 mm.

Pale straw yellow; five spots on each lateral margin of frons, two spots above eyes, one below antennae, one above ocelli, one at apex of vertex, one at middle of each lateral margin, one in each depression of pronotum and on lateral lobes, six on disk of mesonotum, two on each tegula, piceous.

Tegmina stramineous; four spots in costal cell, one in first subapical cell, one in each of cells M₁, M₂, M₃+4, and a regularly spaced series along all veins of corium fuscous-piceous.

Hind margin of pregenital plate transverse, slightly produced on each side of middle. Anal segment very short, apical margin convex, deeply notched medially. Subvaginal plate broad, weakly sclerotized in type specimen; ventral lobe of first

valvulae with inner margin straight, directed caudad, outer margin oblique; third valvulae broadly ovate in lateral view, membrane on posterior margin broader dorsally than ventrally. Bursa copulatrix uniformly covered with minute annular

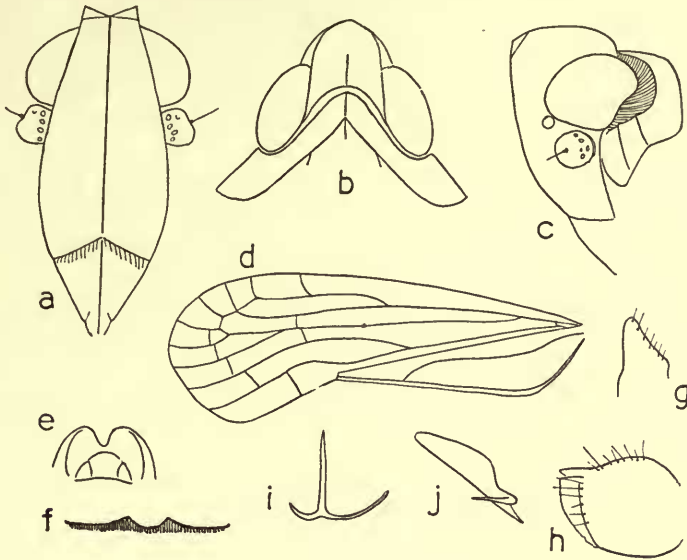


FIG. 70. *Kurandella nigromaculata*, gen. et sp. n.

a, frons and clypeus; b, vertex and pronotum; c, head in profile; d, tegmen; e, anal segment of female; f, posterior margin of pregenital sternite; g, ventral lobe of first valvula; h, third valvula, lateral view; i, j, lateral and ventral views of sclerite in bursa copulatrix.

ornamentation, and furnished with a single sub-placoid spine directed posteriorly; a semicircular plate with a spine at entrance to bursa.

Described from one female collected at Kuranda, Queensland, by F. P. Dodd (May 1904) Brit. Mus. 1948-549. *Kurandella* is distinguished by characters of the frons, vertex, and pronotum and by the tegminal venation. It is separated from *Betatropis* by the venation and from *Caristianus* by the shape of the pronotum.

CIONODERELLA gen. n.

Head with eyes distinctly narrower than pronotum. Vertex not declivous, broader across base than long in middle line (1.5:1), not produced before eyes, median carina distinct in basal half only, disk moderately depressed, anterior margin carinate forming an angle of 140° at apex, lateral margins straight, diverging basad, posterior margin angulately excavate (135°); frons except near base almost straight in profile, or very shallowly convex, longer in middle line than broad (1.2:1), widest part wider than base (1.6:1), basal margin slightly excavate, median carina percurrent, lateral margins carinate, more or less straight and parallel between eyes then broadly ampliate to below antennae thence abruptly incurved to suture, not foliate laterad, disk of frons not depressed, clypeus about three-quarters length of frons in middle line, medially and laterally carinate, median carina most distinct in basal portion, rostrum with subapical joint equal to apical, distinctly surpassing post-trochanters,

antennae subglobose, not sunk in a depression, ocelli not touching eyes, eyes not excavate beneath, not overlapping pronotum. Pronotum moderately short, as long behind eyes as in middle line, anterior margin of disk shallowly convex, posterior margin correspondingly concave (135°), median carina present, lateral carinae of disk straight, diverging basad, attaining hind margin, each 1.2 times as long as median carina, pronotum laterad of disk not inclined anteroventrally, two carinae between eye and tegula, ventral margin of lateral lobes oblique; mesonotum longer than vertex and pronotum combined, tricarinate; pro-tibiae at least as long as pro-femora and trochanters, post-tibiae apparently unarmed.

Tegmina 2.8 times as long as broad, Sc+R fork level with apex of clavus, M forked level with node, Cu1 fork scarcely distad of union of claval veins, nine or ten apical areoles distad of stigmal cell; clavus terminating basad of middle of tegmen.

Medioventral process of pygofer triangular, tapering distally.

Posterior margin of seventh sternite of female transverse. Bursa copulatrix furnished at entrance with a stout finger-like sclerite supported basally by a slender transverse strut.

Egg ellipsoidal with a short peg-like process at one pole.

Type species, *Cionoderella rubromarginata* sp. n.

***Cionoderella rubromarginata* sp. n.**

(FIG. 71)

Male: length, 2.5 mm.; tegmen, 3.6 mm. Female: length, 2.7 mm.; tegmen, 3.9 mm.

Rufous, tinged red; apex of clypeus, rostrum and legs pallid stramineous, abdomen and genitalia fuscous. Tegmina fuscous; node, transverse veins, vein M, two spots in cell M, distal portion of Cu1 in corium, hyaline, remaining part of veins, stigma and Sc cell red. Wings smoky, veins reddish.

Medioventral process of pygofer triangular, sinuately tapering to apex. Phallobase in lateral view with dorsal margin horizontal, ventral margin sinuate with a shallow lobe in distal half.

Posterior margin of seventh sternite of female transverse. Ventral lobes of first valvulae of ovipositor tapering distally, with outer margin oblique; third valvulae in lateral view with dorsal margin straight, ventral margin convex: both these valvulae bearing setae with distinctly pustulate bases.

Described from four males and one female collected at Tena, Ecuador, by F. X. Williams (9 March 1923). The male holotype is in the British Museum (Natural History) Brit. Mus. 1932-279. *Cionoderella* is distinguished by the shape of the frons, vertex, and pronotum, by the tegminal venation, and by the armature of the bursa copulatrix.

SALEMINA Kirkaldy

1906. *Salemina* Kirkaldy, *Bull. Hawaii. Sug. Ass. ent. Ser.* 1 (9):417, 424. Haplotype, *Salemina francescophila* Kirkaldy.

Head with eyes markedly narrower than pronotum. Vertex weakly declivous, broader across base than long in middle line (1.4:1), produced before eyes for about

two-fifths of their length, median carina present except at apex, elevated, disk slightly depressed, anterior margin carinate, elevated, forming an angle of 90° at apex, lateral margins carinate, strongly diverging basad, posterior margin angulately excavate (110°); frons slightly convex in profile, longer in middle line than broad (about 1.6:1), lateral margins carinate, gradually divergent to below level of antennae,

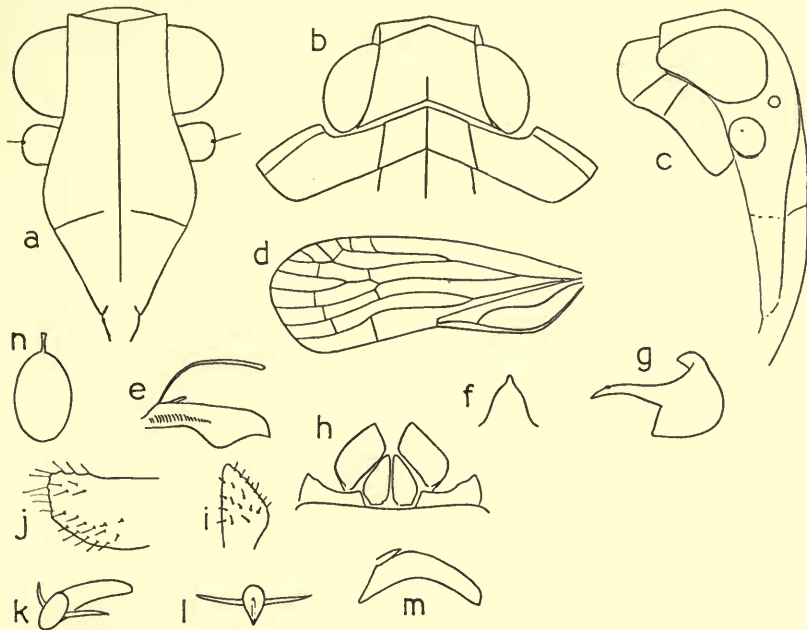


FIG. 71. *Cionoderella rubromarginata*, gen. et sp. n.

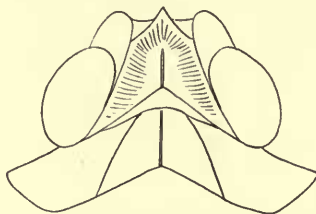
a, frons and clypeus; b, vertex and pronotum; c, head in profile; d, tegmen; e, aedeagus, lateral view; f, medio-ventral process of pygofer; g, genital style; h, ventral view of female genitalia; i, ventral lobe of first valvula of ovipositor; j, third valvula, lateral view; k, l, m, posterolateral, anterior, and lateral views of sclerite near entrance to bursa copulatrix; n, egg.

thence incurved, median carina present throughout; clypeus tricarinate, three-quarters of length of frons; rostrum with subapical joint apparently equal to apical, antennae subglobose, not sunk in a depression, eyes not overlapping pronotum. Pronotum moderately short, as long behind eyes as in middle line, anterior margin of disk truncate-convex, posterior margin broadly angulately excavate, median carina present, lateral carinae of disk straight or slightly convex, each about 1.6 times as long as median carina, attaining hind margin, pronotum laterad of disk not or scarcely inclined anteroventrally; mesonotum longer than vertex and pronotum combined; distinctly tricarinate; post-tibiae with a single spine basad of middle.

Tegmina about three times as long as broad, anterior margin slightly convex, commissural margin forming a re-entrant angle of about 160° at apex of clavus, Sc+R fork about level with Cu1 fork, veins prominent, nine apical areoles distad of stigma, short, three in R and M scarcely longer than wide; clavus terminating at middle of tegmen.

Salemina francescophila Kirkaldy

(FIG. 72)

1906. *Salemina francescophila* Kirkaldy, loc. cit.: 424.FIG. 72. *Salemina francescophila* Kirkaldy.

Vertex and pronotum.

The genus is known only from Queensland. Its affinities are uncertain, but would seem to lie with *Mahuna* Dist., from which it is separated by the proportions of the frons and pronotal disk. The tegminal venation, while not much dissimilar from that of *Mahuna*, would appear to be closest to that of *Hamba perplexa* Dist.

FRANCESCA Kirkaldy

1906. *Francesca* Kirkaldy, *Bull. Hawaii. Sug. Ass. ent. Ser. 1*, pl. 9:417, 424. Haplotype, *Francesca salemnophila* Kirkaldy.

Head with eyes slightly narrower than pronotum. Vertex not declivous or scarcely so, as long in middle line as broad across base, produced before eyes for a third of their length, median carina present basally, obsolete distally, disk strongly depressed, markedly deepest at middle, anterior margin carinate, forming an angle of 110° at apex, lateral margins straight, moderately diverging basally, posterior margin angulately excavate (130°); frons shallowly convex in profile, longer in middle line than broad (1.4:1), widest part wider than base (2.3:1), basal margin sinuate, median carina percurrent, lateral margins straight to below level of antennae thence moderately incurved to suture, slightly foliate anteriorly, disk of frons not depressed; clypeus three-quarters of length of frons in middle line, medially and laterally carinate, antennae subglobose, not sunk in a depression, eyes slightly overlapping pronotum. Pronotum short, shorter behind eyes than in middle line, anterior margin of disk truncate, posterior margin rectangularly excavate, median carina present, lateral carinae of disk slightly concave, diverging basad, attaining hind margin, each about 2.3 times as long as median carina, pronotum laterad of disk only moderately inclined anteroventrally, four weak supernumerary carinae behind eyes, lateral margins carinate between eye and tegula, ventral margin of pronotal lobes oblique; mesonotum twice as long as pronotum and vertex combined, distinctly tricarinate; post-tibiae with a single spine basad of middle.

Tegmina three times as long as wide, costal margin slightly convex, sutural margin forming a re-entrant angle of about 150° at apex of clavus, Sc+R fork slightly distad

of Cu₁ fork, M forking at level of node, Cu₁ fork about level with union of claval veins, nine apical areoles distad of stigma, the anterior five about as broad as long; clavus terminating distad of middle of tegmen.

Francesca salemiphila Kirkaldy

(FIG. 73)

1906. *Francesca salemiphila* Kirkaldy, loc. cit.: 424.

1907. Kirkaldy, *Bull. Hawaii. Sug. Ass. ent. Ser. 3*, pl. 9, figs. 18, 19.

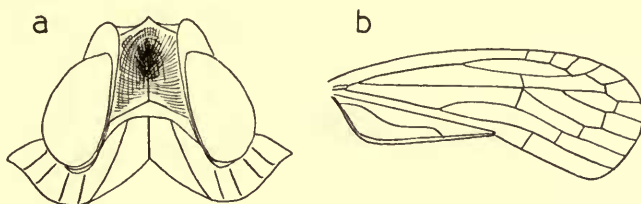


FIG. 73. *Francesca salemiphila* Kirkaldy.

a, vertex and pronotum; b, tegmen.

The genus is distinguished by the shape of the vertex and pronotum and by the tegminal venation: it is possible that its comparatively large size (6.0 mm. from vertex to apex of folded tegmina) is also characteristic of the genus. The present species is known only from Queensland.

MORABALLIA gen. n.

Head with eyes slightly narrower than pronotum. Vertex slightly declivous, as broad across base as long in middle line, produced before eyes for a quarter of their length, median carina absent, indicated at extreme base, disk markedly depressed, anterior margin carinate, elevated, sinuate, forming a general angle of 50°, lateral margins short, elevated, straight, diverging basad, posterior margin rectangularly excavate; frons slightly convex in profile, longer in middle line than broad (1.8:1), widest part wider than base (2.2:1), basal margin excavate, median carina elevated, percurrent, lateral margins carinate, foliate obliquely, straight to below level of antennae thence slightly incurved to suture, disk of frons distinctly longitudinally depressed between median carina and margins, less so distally; clypeus two-thirds of length of frons, medially and laterally carinate, rostrum with subapical segment very markedly shorter than apical, antennae subglobose, not sunk in a depression, ocelli separated from eyes, eyes a little overlapping pronotum. Pronotum short, anterior margin of disk convex, posterior margin angulately excavate (110°), median carina present, lateral carinae of disk straight or slightly convex, each about 1.2 times as long as median carina, attaining hind margin, pronotum laterad of disk moderately inclined anteroventrally, two weak incomplete carinae at lateral margin, ventral margin of lateral lobes convex, slightly oblique; mesonotum longer than vertex and pronotum combined, distinctly tricarinate, carinae diverging basad; pro-tibiae equal to pro-femora with trochanters, post-tibiae with a single spine basad of middle.

Tegmina three times as long as broad, costal margin slightly convex, sutural margin forming a re-entrant angle of 145° at apex of clavus, Sc+R fork level with Cur fork, both a little distad of union of claval veins, M forking level with node, eight apical areoles distad of stigmal cell; clavus terminating at middle of tegmen.

Bursa copulatrix armed with a finger-like sclerite with a broadly triangular base: a spine of similar shape also near entrance.

Type species, *Moraballia fuliginosa* sp. n.

***Moraballia fuliginosa* sp. n.**

(FIG. 74)

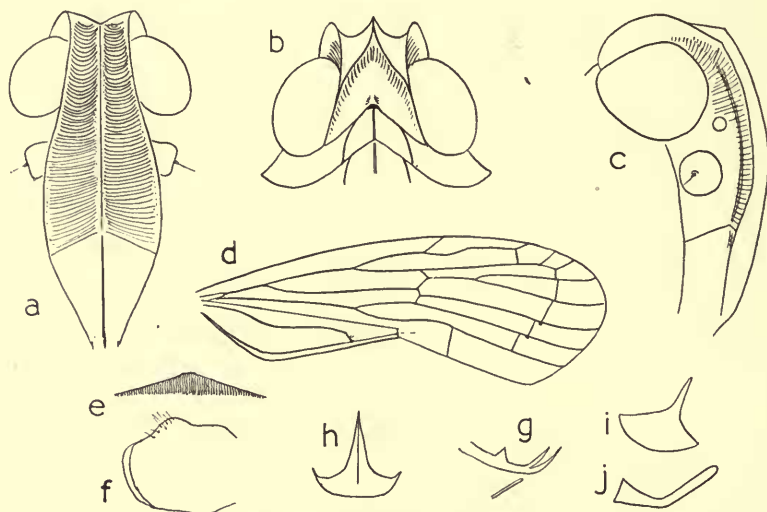


FIG. 74. *Moraballia fuliginosa*, gen. et sp. n.

a, frons and clypeus; *b*, vertex and pronotum; *c*, head in profile; *d*, tegmen; *e*, posterior margin of pregenital sternite of female; *f*, third valvula of ovipositor; *g*, apical portion of first valvula; *h*, sclerite in wall of vagina; *i*, *j*, dorsal and lateral views of sclerite in bursa copulatrix.

Female: length, 3.9 mm.; tegmen, 5.0 mm.

Fuscous-piceous; clypeus, lower part of thorax and legs fuscous. Tegmina fuscous-piceous, costal cell fuscous.

Hind margin of pregenital sternite transverse-convex. Ovipositor with first valvulae beset with two stout teeth at apex and a broadly triangular tooth nearer base; third valvulae broadly subovate, with a rounded setose eminence at middle of dorsal margin. Bursa copulatrix furnished with a straight finger-like spine dilated at its base into a crescentic lamina; a similar spine, more acute at apex and with a narrower base, in vagina.

Described from one female labelled 'Moraballi Creek, Essequibo River, British Guiana, 27.ix.1929; Brit. Mus. 1929-485'. Type in British Museum. This genus is distinguished by the shape of the frons, vertex, and pronotum and by the tegminal venation. The structure of the head recalls that of *Francesca*, but the shape of the pronotum and of the apical areoles is different in the two genera.

BATHYCEPHALA gen. n.

Head with eyes slightly narrower than pronotum. Vertex declivous, broader across base than long in middle line (1.6:1), produced before eyes for half their length, median carina absent, disk sunk below level of anterior margin to a depth about equal to half length of vertex, anterior margin carinate, foliate, transverse along its ventral margin, obtusely angulate at apex of dorsal margin (130°), lateral margins elevated, straight, subparallel, posterior margin angulately excavate (120°); frons slightly convex in profile, longer in middle line than broad (1.4:1), widest part wider than base (1.5:1), basal margin excavate, median carina elevated, percurrent, lateral margins carinate, foliate obliquely, straight to below level of antennae thence slightly incurved, disk of frons longitudinally impressed between median carina and margins; clypeus three-quarters of length of frons, medially and laterally carinate; rostrum with subapical segment equal to apical, antennae subglobose, not sunk in a depression, ocelli very narrowly separated from eyes, eyes scarcely excavated below, slightly overlapping pronotum. Pronotum short, not quite as long behind eyes as in middle line, anterior margin of disk truncate, posterior margin deeply concave, median carina present, lateral carinae of disk concave, each fully three times as long as median carina, not attaining hind margin, pronotum laterad of disk inclined anteroventrally except near hind margin, ventral margin of lateral lobes distinctly oblique; mesonotum longer than vertex and pronotum together, tricarinate; pro-tibiae shorter than pro-femora with trochanters, post-tibiae with a single spine basad of middle.

Tegmina 3.2 times as long as broad, costal margin slightly convex, sutural margin forming a re-entrant angle of about 150° at apex of clavus, Sc+R fork slightly distad of Cur fork, M forking slightly basad of node, Cur fork about level with union of claval veins, five small cells in stigmal area, eight apical areoles around margin distad of these; clavus terminating distad of middle of tegmen.

Anal segment of female about as broad as long, telson just surpassing apical margin. Posterior margin of seventh sternite transverse-convex. Bursa copulatrix armed with a spinose sclerite; a similar sclerite at its entrance.

Egg ellipsoidal with a small peg-like micropylar process at one pole.

Type species, *Bathycephala guianesa* sp. n.

Bathycephala guianesa sp. n.

(FIG. 75)

Female: length, 4.8 mm.; tegmen, 6.3 mm.

Fuscous; clypeus at base and apex, lateral margins and base of frons, genae except before antennae, sides of head above ocelli and above eyes, carinae and hind margin of pronotum, carinae of mesonotum, a spot inside lateral mesonotal carinae at base, a spot at each lateral angle, apex of scutellum, rostrum, margins of pleurites, apex of post-femora and all post-tibiae, testaceous to pallid. Tegmina fuscous-piceous, costal cell, stigma, cell Sc+R, basal two-thirds of clavus, a broken band from node to apex of clavus extending into cell Curb, pallid or mostly so, veins testaceous, pallid in membrane, membrane infusate, paler basad of transverse veins and apical margin.

Subvaginal plate broadly triangular, pigmented but not strongly sclerotized. Ventral lobes of first valvulae with inner margin straight, outer margin broadly curved. First valvulae of ovipositor with three broad teeth and two longer apical teeth. Bursa copulatrix furnished with a flattened spine arising from a crescentic

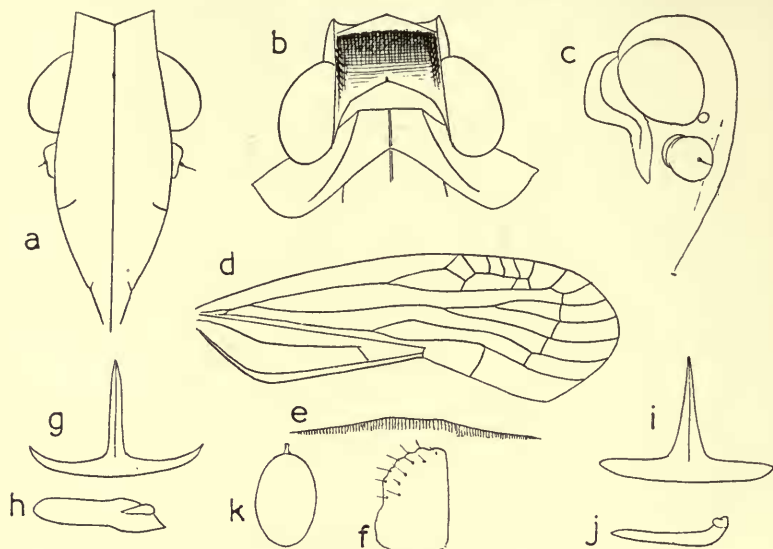


FIG. 75. *Bathycephala guianesa*, gen. et sp. n.

a, frons and clypeus; *b*, vertex and pronotum; *c*, head in profile; *d*, tegmen; *e*, posterior margin of pregenital sternite of female; *f*, ventral lobe of first valvula of ovipositor; *g*, *h*, dorsal and lateral views of sclerite in bursa copulatrix; *i*, *j*, dorsal and lateral views of sclerite in vagina; *k*, egg.

sclerite; entrance to bursa armed with a similar spine, one-third longer than preceding and less flattened.

Described from one female taken at New River Head, British Guiana, 1,500–2,500 ft., by C. A. Hudson (27 April 1938), Brit. Mus. 1939–370. *Bathycephala* is distinguished by the shape of the vertex and pronotum and by the tegminal venation. It differs from *Moraballia* in the shape of the vertex and pronotum and in profile of head, as well as in the proportionate length of the clavus.

EPIRAMA Melichar

1903. *Epirama* Melichar, *Hom. Fauna Ceylon*: 45. Haplotype, *E. conspergata* Melichar.

Head with eyes distinctly narrower than pronotum. Vertex not declivous, longer in middle line than broad across base (1.3:1), produced before eyes for two-thirds of their length, median carina distinct throughout, disk slightly depressed, anterior margin carinate, acutely convex (through 70°), lateral margins straight, diverging basad, posterior margin shallowly excavate; frons longer in middle line than broad (1.7:1), widest part wider than base (2.7:1), basal margin convex, median carina distinct, percurrent, lateral margins carinate, weakly foliate laterally, straight to below level of antennae thence slightly incurved, disk of frons slightly impressed on each side of median carina; clypeus about three-quarters of length of frons, medially

and laterally carinate, rostrum with subapical segment shorter than apical, surpassing post-coxae, antennae subglobose, not sunk in a depression, ocelli not touching eyes, eyes not overlapping pronotum. Pronotum moderately short, not quite as long behind eyes as in middle line, anterior margin of disk convex, posterior margin angulately excavate (110°), median carina present, lateral carinae of disk convex, attaining hind margin, each about 1.2 times as long as median carina, pronotum laterad of disk not inclined anteroventrally or only slightly so, margins carinate between eye and tegula, ventral margin of lateral lobes oblique; mesonotum longer than vertex and pronotum combined, tricarinate; pro-tibiae equal to pro-femora with trochanters, post-tibiae unarmed or with a single spine basad of middle.

Tegmina 3.4 times as long as broad, costal margin slightly convex, sutural margin forming a re-entrant angle of about 160° at apex of clavus, Sc+R fork about level with Cur fork, M forked at level of node, Cur fork about level with union of claval veins, eight apical areoles around margin distad of stigmal cell; clavus terminating distad of middle of tegmen.

***Epirama conspergata* Melichar**

(FIG. 76)

1903. *Epirama conspergata* Melichar, loc. cit.: 45.

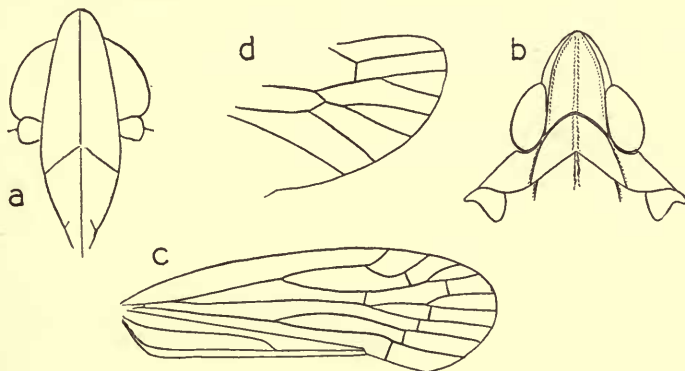


FIG. 76. *Epirama conspergata* Melichar.

a, frons and clypeus; b, vertex and pronotum; c, tegmen; d, apex of wing.

The figures are after Melichar.

Epirama appears to be close to *Betatropis* and *Caristianus*. The genera are apparently constantly separated by the carination of the vertex and the proportions of the tegmina. *Epirama* was described as having no post-tibial spine, while *Betatropis* was stated to have two. This difference is probably unreliable.

MAHUNA Distant

1907. *Mahuna* Distant, *Ann. Mag. nat. Hist.*: (7) **19**: 289. Orthotype, *Mahuna conspersa* Distant.

1928. *Tabiana* Jacobi, *Archiv für Zoologi*: **19A** No. 28: 28. Logotype, *Tabiana viridicans* Jacobi.

Head with eyes distinctly narrower than pronotum. Vertex not declivous, broader across base than long in middle line ($1.7:1$), produced before eyes for three-eighths

of their length, median carina present except at extreme apex, disk distinctly depressed, anterior margin carinate, forming an angle of 120° at apex, lateral margins carinate, straight, diverging basad, posterior margin excavate (about 130°), frons slightly convex in profile, longer in middle line than broad, widest part fully twice as wide as base, basal margin slightly excavate, median carina percurrent, lateral margins carinate, slightly foliate laterally, convex, diverging to below level of antennae thence incurved to suture, disk of frons not impressed; clypeus about two-thirds length of frons, medially and laterally carinate, rostrum with subapical segment shorter than apical, antennae subglobose, not sunk in a depression, ocelli separated from eyes, eyes not covering pronotum. Pronotum short, at least as long behind eyes as in middle line, anterior margin of disk convex-truncate, posterior margin angulately excavate (about 110°), median carina present, lateral carinae of disk convex, each three times as long as median carina, attaining hind margin, pronotum laterad of disk slightly inclined anteroventrally, ventral margins of lateral lobes oblique; mesonotum longer than vertex and pronotum together, tricarinate, pro-tibiae shorter than pro-femora with trochanters, post-tibiae with a single spine basad of middle.

Tegmina three times as long as broad, costal margin slightly convex, sutural margin forming a re-entrant angle of 155° at apex of clavus, Sc+R fork almost level with Cur fork, both scarcely distad of union of claval veins, M forked level with node, nine apical areoles distad of stigmal cell; clavus terminating distad of middle of tegmen. Wings with R two-branched, M two-branched, Cur three-branched.

***Mahuna conspersa* Distant**

(FIG. 77)

1907. *Mahuna conspersa* Distant, loc. cit.: 290.

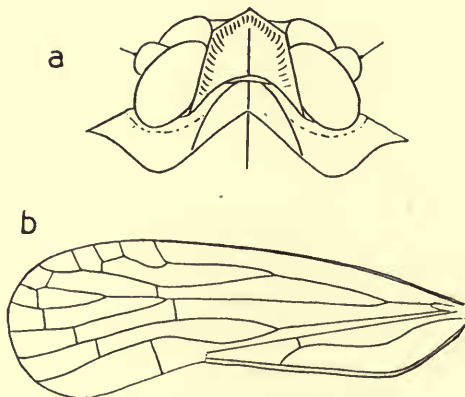


FIG. 77. *Mahuna conspersa* Distant.

a, vertex and pronotum; b, tegmen.

The figures are of Distant's type. *Mahuna* is distinguished by the shape of the vertex and pronotum and by the tegminal venation; it differs from *Salemina* Kirk.

in the shape of the pronotal disk and in the proportions of the apical areolets of the tegmen.

MLANJELLA gen. n.

Head with eyes slightly narrower than pronotum. Vertex not declivous, broader across base than long in middle line (2:1), produced before eyes for scarcely a fifth of their length, median carina present only in basal half, disk depressed, anterior margin carinate, forming an angle of 155° at apex, lateral margins carinate, straight, diverging basad, posterior margin subangulately excavate (110°); frons slightly convex in profile, longer in middle line than broad (1.5:1), widest part wider than base (1.8:1), basal margin truncate, median carina percurrent, rather calloused in basal fifth, lateral margins carinate, slightly foliate laterad, convex, diverging to below level of antennae thence slightly incurved to suture, disk of frons not impressed; clypeus two-thirds of length of frons, medially and laterally carinate, rostrum with subapical segment equal to apical, just attaining post-coxae, antennae subglobose, slightly sunk in a depression, ocelli touching eyes, eyes slightly covering pronotum. Pronotum short, not as long behind eyes as in middle line, anterior margin of disk convex-truncate, posterior margin angulately excavate (about 100°), median carina present, lateral carinae of disk slightly convex, each three times as long as median carina, attaining hind margin, pronotum laterad of disk distinctly inclined anteroventrally, ventral margins of lateral lobes oblique; mesonotum longer than vertex and pronotum together, tricarinate, pro-tibiae equal to pro-femora with trochanters, post-tibiae with a single spine basad of middle.

Tegmina fully three times as long as broad, costal margin slightly convex, sutural margin forming a re-entrant angle of 150° at apex of clavus, Sc+R fork about level with Cui fork, or slightly distad, M fork slightly basad of node, Cui fork about level with union of claval veins, stigmal area with about four small cells, eight areoles distad of these around apical margin; clavus terminating distad of middle of tegmen. Wings with R two-branched, M two-branched, Cui three-branched.

Bursa copulatrix unarmed, two large spines at its entrance, each attached to a crescentic plate in the wall.

Type species, *Mlanjella bispinosa* sp. n.

Mlanjella bispinosa sp. n.

(FIG. 78)

Female: length, 3.5 mm.; tegmen, 5.0 mm.

Posterior margin of vertex raised in a slight ridge, median carina rather broad.

Fuscous: two bands across frons and genae, carinae of pronotum and mesonotum, hind margin of pronotum, lower third of tegulae, lower part of thorax and margins of abdomen ochraceous, legs pale fuscous. Tegmina fuscous, two transparent oval spots in costal cell, one at stigma, all transverse veinlets and apex of clavus pallid. Wings infusate.

Posterior margin of seventh abdominal sternite transverse. Subvaginal plate with dorsal margin about half length of ventral margin. Outer margin of ventral lobes of

first valvulae oblique, broadly rounding into apical margin; first valvulae armed with six teeth, the basal three short. Third valvulae subquadrate with an eminence on dorsal margin. Bursa copulatrix unarmed; two unequal spines opposed to one another at entrance to bursa, each rising from a crescentic sclerite.

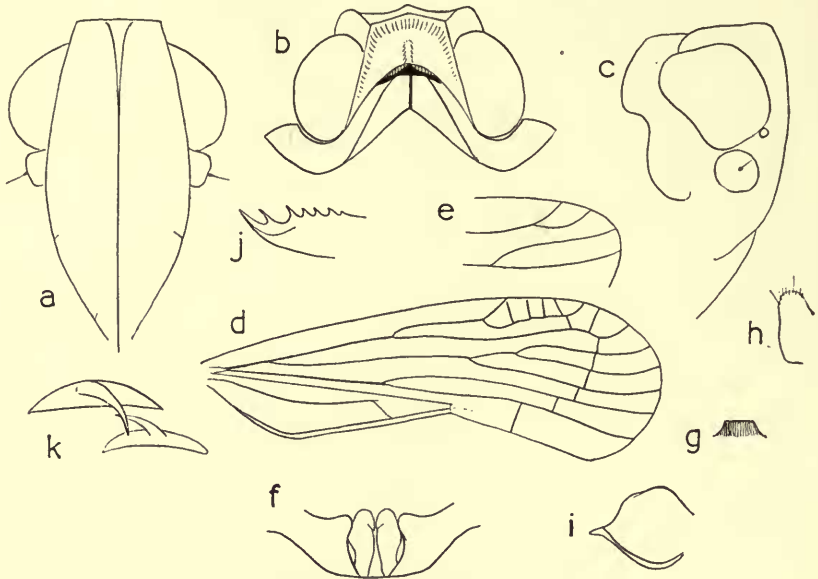


FIG. 78. *Mlanjella bispinosa*, gen. et sp. n.

a, frons and clypeus; *b*, vertex and pronotum; *c*, head in profile; *d*, tegmen; *e*, apex of wing; *f*, posterior margin of seventh sternite, lateroventral portions of eighth, and ventral lobes of first valvulae of ovipositor; *g*, subvaginal plate; *h*, ventral lobe of first valvula; *i*, third valvula; *j*, first valvula; *k*, spiniferous sclerites at entrance to bursa copulatrix.

Described from one female collected at Mt. Mlanje, Nyasaland, by S. A. Neave (6 July 1913), Brit. Mus. 1913-140. Type in British Museum.

Mlanjella is distinguished by the shape of the frons, vertex, and pronotum and by the tegminal venation.

HAITIANA Dozier

1936. *Haitiana* Dozier, *Amer. Mus. Novit.* 845:2. Orthotype, *Haitiana nigrita* Dozier.

Head with eyes only a little narrower than pronotum. Vertex not or scarcely declivous, broader across base than long in middle line (about 2:1), not produced before eyes, medially carinate throughout, disk not depressed, anterior margin carinate, convex, a transverse callus between apex of vertex and frons, and a transverse carina on each side near anterior margin of eyes, parallel to anterior margin of vertex, lateral margins weakly carinate, concave, diverging basad, posterior margin broadly excavate; frons slightly convex in profile, broader than long in middle line (1.1:1), widest part wider than base (nearly 1.3:1), basal margin truncate, median carina percurrent, lateral margins carinate, not foliate, straight or slightly convex to below level of antennae, thence abruptly incurved to suture, disk of frons not impressed;

clypeus about as long as frons, medially and laterally carinate, rostrum with sub-apical segment shorter than apical, antennae cylindrical, obliquely truncate distally, sunk in a depression and roofed by eyes, ocelli touching eyes, eyes not or only slightly overlapping pronotum. Pronotum short, as long behind eyes as in middle line, anterior margin of disk convex, posterior margin angulately excavate (about 130°), disk small, medially carinate, with lateral carinae convex, each fully twice as long as median carina, attaining hind margin, pronotum laterad of disk not inclined antero-ventrally, with four supernumerary carinae on each side behind eyes but no carina between eyes and tegulae at lateral margins, ventral margins of lateral lobes oblique; mesonotum longer than vertex and pronotum combined, tricarinate, tegulae not carinate, pro-tibiae shorter than pro-femora with trochanters, post-tibiae with a slight spine basad of middle.

Tegmina about 2.8 times as long as broad, costal margin slightly convex, sutural margin forming a re-entrant angle of 145° at apex of clavus, Sc+R fork nearly level with Cur fork, M forked level with node, Cur fork distad of union of claval veins but basad of apex of clavus, R, M and Cura approximated at nodal line, Curb distinctly convex distad of apex of clavus, Cur and first claval vein each foliate near middle, second claval vein foliate near apex, seven areoles along apical margin distad of stigmal cell. Wings with R simple, M two-branched.

***Haitiana nigrita* Dozier**

(FIG. 79)

1936. *Haitiana nigrita* Dozier, loc. cit.: 2.

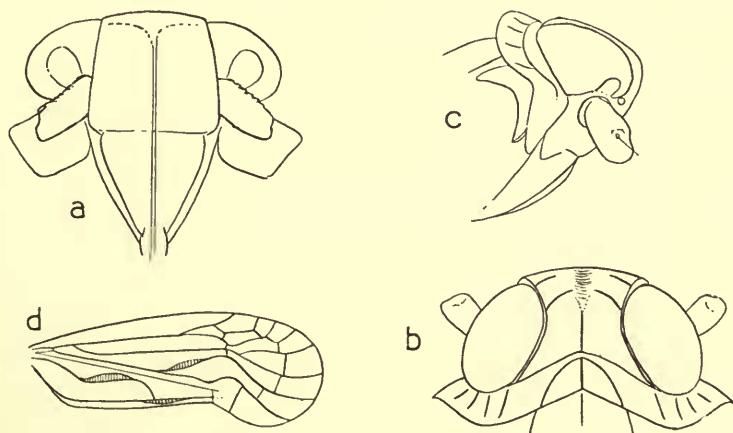


FIG. 79. *Haitiana nigrita* Dozier

a, frons and clypeus; b, vertex and pronotum; c, head in profile; d, tegmen.

The figures of the head are from the holotype in the American Museum of Natural History, while that of the tegmen is from a specimen in the British Museum. The genus is well distinguished by the characters of the head and pronotum and by the tegminal venation. The structure of the anterior portion of the vertex recalls that

found in *Eurynomeus*, while the tegmina are not dissimilar from those of *Trophlepsia*.

EURYNOMEUS Kirkaldy

1906. *Eurynomeus* Kirkaldy, *Bull. Hawaii. Sug. Ass. ent. Ser.* 1 (9):417, 422. Haplotype, *Eurynomeus australiae* Kirkaldy, loc. cit.:422.

Head with eyes narrower than pronotum. Vertex not declivous, broader across base than longer in middle line (1.4:1), produced before eyes for about a fifth of their length, median carina present except at extreme apex, disk slightly depressed, anterior margin carinate, strongly convex, a more or less distinct carina on each side at level of anterior margin of eyes parallel to anterior margin of vertex, forming, except for a medial interruption, two carinae between vertex and frons, lateral margins straight, diverging basad, posterior margin angulately excavate (about 120°), frons moderately convex in profile, about as broad as long in middle line, widest part wider than base (1.6:1), basal margin truncate, median carina percurrent, lateral margins carinate, foliate laterad distally, convex, diverging to below level of antennae thence incurved to suture, disk of frons not impressed; clypeus about four-fifths of length of frons, medially and laterally carinate, rostrum with subapical segment about equal to apical, antennae subglobose, slightly sunken, ocelli touching eyes, eyes not or scarcely overlapping pronotum. Pronotum short, as long behind eyes as in middle line, anterior margin of disk convex-truncate, posterior margin angulately excavate (115°), median carina present, an impression on disk on each side, lateral carinae of disk straight, each about twice as long as median carina, attaining hind margin, pronotum laterad of disk not or scarcely inclined anteroventrally, ventral margin of lateral lobes oblique; mesonotum longer than vertex and pronotum together, tricarinate, pro-tibiae slightly longer than pro-femora with trochanters, post-tibiae with a single spine basad of middle.

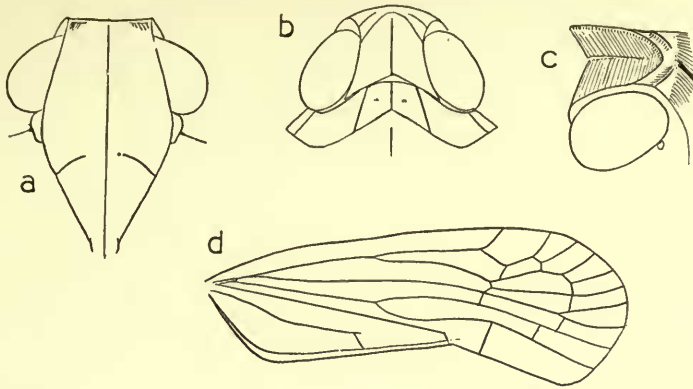
Tegmina fully three times as long as broad, costal margin slightly convex, sutural margin forming a re-entrant angle of 155° at apex of clavus, Sc+R fork about level with Cu1 fork, both scarcely distad of union of claval veins, M forking at level of node, nine apical areoles distad of stigmal cell; clavus terminating distad of middle of tegmen. Wings with R two-branched, M two-branched, Cu1 three-branched.

Eurynomeus granulatus Muir

(FIG. 80)

1921. *Eurynomeus granulatus* Muir, *Proc. Hawaii. ent. Soc.* 4:571.

For comparison with Kirkaldy's type (Kirkaldy, 1907, pl. 9, figs. 7, 8) figures are given of the type of *E. granulatus* Muir. A third species, *E. niger* Muir, was also seen, and it would appear that the characters given above are truly generic. The genus is readily distinguished by the shape of the frons, vertex, and pronotum, by the interrupted double carinae at the anterior margin of the vertex (though the anterior portions may be evanescent), and by the tegminal venation. All the known species are Australasian.

FIG. 80. *Eurynomeus granulatus* Muir

a, frons and clypeus; b, vertex and pronotum; c, vertex and base of frons, laterodorsal view; d, tegmen.

PSEUDHELICOPTERA Fowler

1904. *Pseudhelicoptera* Fowler, *Biol. Cent.-Amer. Rhynch.-Hom.* 1:103, 107. Haplotype, *Pseudhelicoptera nasuta* Fowler.

Head with eyes distinctly narrower than pronotum. Vertex not declivous, markedly convex in profile, longer in middle line than broad across base (about 3:1), produced before eyes for nearly two-thirds of their length, median carina present only in basal third, disk much hollowed out, a small triangular areolet at each latero-apical angle of head, lateral margins strongly foliate, much raised above anterodorsal margin of eyes, straight, parallel or slightly diverging between eyes, posterior margin acutely excavate, frons in profile almost straight, longer in middle line than broad (about 3:1), widest part about three times width at base, basal margin acutely convex, median carina percurrent, lateral margins carinate, gradually diverging to below level of antennae thence slightly incurved to suture, disk not impressed; clypeus about half of length of frons, medially and laterally carinate, antennae subglobose, slightly sunk in a depression, ocelli separated from eyes, eyes broadly ovate, not excavate, not or only slightly overlapping pronotum. Pronotum very short medially, of moderate length behind eyes, disk sublinear, tectiform, anteriorly acute, posteriorly rectangularly excavate, medial notch acute, median carina prominent, pronotum laterad of disk not inclined anteroventrally, three supernumerary carinae behind each eye and two at margin between eye and tegula, ventral margins of lateral lobes oblique; mesonotum about equal to vertex and pronotum combined, tricarinate, post-tibiae with a single spine basad of middle.

Tegmina three times as long as wide, costal margin slightly convex, sutural margin forming a re-entrant angle of about 155° at apex of clavus, a narrow costal area present, Sc+R fork slightly basad of Cu₁ fork, or at same level, M forked at level of node, Cu₁ fork very approximately level with union of claval veins, numerous supernumerary veinlets along costal margin, about 9 in Sc and R at margin distad of

stigmal cell, apical areoles of Cu normal; clavus terminating distad of middle of tegmen. Wing venation normal.

Medioventral process of pygofer subconical, raised in a small dome apically.

***Pseudhelicoptera nasuta* Fowler**

(FIG. 81)

1904. *Pseudhelicoptera nasuta* Fowler, loc. cit.: 108, p. 11, figs. 18, a, b.

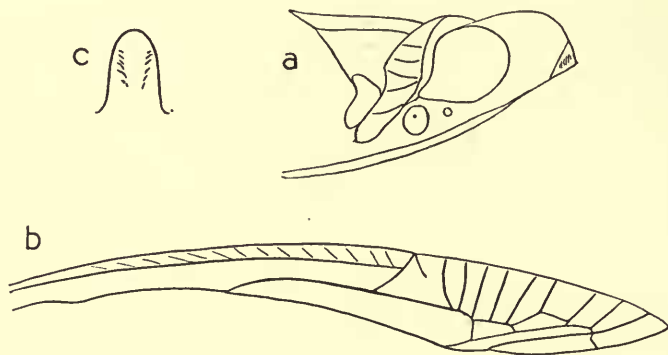


FIG. 81. *Pseudhelicoptera nasuta* Fowler

a, head and thorax lateral view; b, anterior margin of tegmen; c, medioventra process of pygofer.

The figures are of Fowler's male holotype from Volcán de Chiriquí. A female from New River, British Guiana (C. A. Hudson, 26 February 1938), is larger than the preceding, being 6.9 mm. long with a tegminal length of 7.2 mm. The coloration is similar but generally darker. In the tegmina Cura is forked at the level of the apical line of transverse veins, while in the type it is simple to the apex. The genus is readily distinguished by the shape of the head, pronotum, and tegminal venation, and occupies a rather isolated position in its group.

REMOSACHILUS gen. n.

Head with eyes slightly narrower than pronotum. Vertex not declivous, longer in middle line than broad across base (3:1), produced before eyes for twice their length, median carina distinct in basal third, obsolete in distal two-thirds, disk slightly depressed, anterior margin carinate, shallowly convex, a small triangular areolet at each latero-apical angle of head, lateral margins carinate, foliate, straight or slightly sinuate, diverging basad, posterior margin rectangulately excavate, frons slightly concave in profile, longer in middle line than broad (3.3:1), widest part about three times as wide as width at base, basal margin convex, median carina percurrent, lateral margins carinate and slightly foliate anteriorly, sinuately diverging to below level of antennae thence gently incurved to suture, disk not impressed, clypeus about a third of length of frons, medially and laterally carinate, rostrum with subapical segment shorter than apical, antennae subglobose, separated from eyes, eyes elongate-oval, not excavate, not overlapping pronotum. Pronotum moderately long, not quite as

long behind eyes as in middle line, anterior margin of disk semicircularly convex, posterior margin acutely excavate, median carina present, lateral carinae of disk straight, each about 1.1 times as long as median carina, attaining hind margin, pronotum laterad of disk not inclined anteroventrally, two faint supernumerary carinae behind eyes, two carinae on each side between eye and tegula, ventral margins of lateral lobes oblique; mesonotum shorter than vertex and pronotum combined, tricarinate, pro-tibiae about equal to pro-femora with trochanters, post-tibiae with a single spine basad of middle.

Tegmina a little more than three times as long as wide, costal margin slightly convex, sutural margin forming a re-entrant angle of 155° at apex of clavus, Sc+R forked level with Cur fork or slightly distad, M fork about level with node, Cur fork distad of union of claval veins but markedly basad of apex of clavus, stigmal cell simple, eight areoles distad of it around apical margin, clavus terminating distad of middle of tegmen.

Type species, *Remosachilus macrocephalus* sp. n.

***Remosachilus macrocephalus* sp. n.**

(FIG. 82)

Male and female: length, 5.0 mm.; length of head in middle line, 1.5 mm.; tegmen, 5.3 mm.

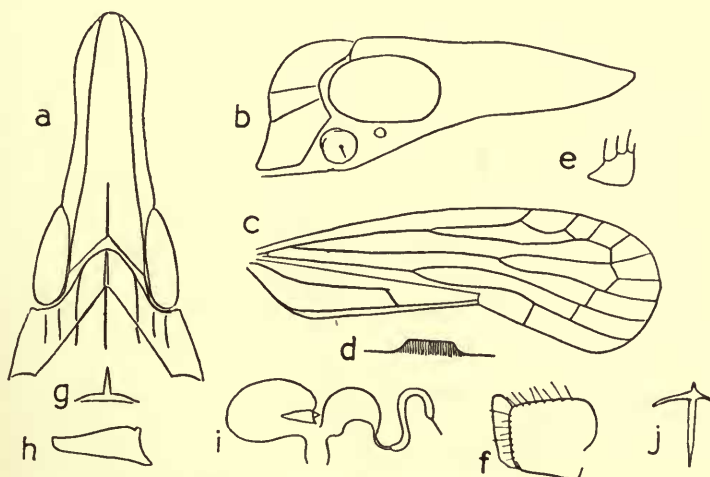


FIG. 82. *Remosachilus macrocephalus*, gen. et sp. n.

a, vertex and pronotum; b, head and pronotum in profile; c, tegmen; d, median portion of margin of pregenital sternite; e, ventral lobe of first valvula of ovipositor; f, third valvula of ovipositor; g, subvaginal plate, posterior view; h, j, lateral and dorsal views of sclerite in bursa copulatrix; i, bursa copulatrix and spermatheca (semi-diagrammatic).

Fuscous, speckled with round pallid-yellow spots; lateral margins of frons with three pallid wedges in basal half, pale testaceous in distal half with five oblique fuscous lines, abdomen fuscous. Tegmina infusate, speckled with yellow in costal

cell, near veins and on clavus, apical margin, from node to Cu, red. Wings infusate.

Posterior margin of seventh abdominal sternite of female transverse, slightly convex-truncate in middle. Subvaginal plate with a median spine. Ventral lobes of first valvulae triangular, distinctly broader than long, third valvulae subquadrate, as broad at base as long, membrane on distal margin prominent. Bursa copulatrix unarmed, a large flattened sclerotized plate at entrance bearing a short spine.

Described from one male and two females labelled 'Sabron, Camp 2, 2000 ft., Cyclops Mts., Dutch New Guinea, vi. 1936, L. E. Cheesman, B.M. 1936-271.' Type in British Museum. The genus is distinguished by the shape of the head and pronotum and by the tegminal venation.

HAMBA Distant

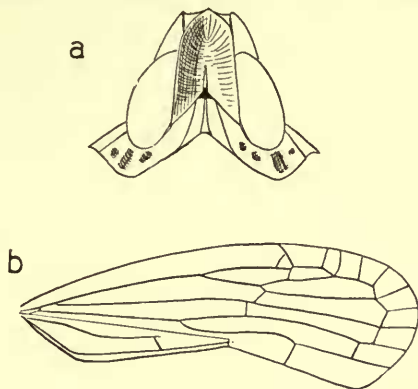
1907. *Hamba* Distant, *Ann. Mag. nat. Hist.* (7) **19**:279. Orthotype, *Cixius perplexus* Walker.

Head with eyes distinctly narrower than pronotum. Vertex not declivous, longer in middle line than broad across base (1.2:1), produced before eyes for two-fifths of their length, median carina distinct in basal half, obsolete distally, disk markedly depressed, anterior margin carinate, rectangulately convex at apex, a small triangular areolet at each latero-apical angle of head, its lower margin rather indistinct, lateral margins carinate, foliate dorsad, straight, gradually diverging basad, posterior margin rectangulately excavate with a distinct median notch; frons slightly convex in profile, longer in middle line than broad, widest part wider than base (about 2.5:1), basal margin truncate, median carina very prominent, percurrent, lateral margins carinate, straight or slightly convex to below level of antennae thence incurved to suture, disk not impressed; clypeus about two-thirds of length of frons, laterally carinate, median carina prominent, rostrum with subapical segment shorter than apical (1.6:1), antennae subglobose, not sunk in a depression, ocelli touching eyes or very narrowly separated from them, eyes scarcely overlapping pronotum. Pronotum short, about two-thirds as long behind eyes as in middle line, anterior margin of disk truncate, posterior margin angulately excavate (110°), median carina broad and distinct, lateral carinae of disk concave, each about twice as long as median carina, attaining hind margin, pronotum laterad of disk slightly inclined antero-ventrally, an indication of three supernumerary carinae behind eyes or none, lateral margin carinate between eye and tegula, ventral margins of lateral lobes oblique; mesonotum longer than vertex and pronotum combined, tricarinate, pro-tibiae slightly longer than pro-femora with trochanters, post-tibiae with a single spine basad of middle.

Tegmina nearly 3.2 times as long as broad, costal margin slightly convex, sutural margin forming a re-entrant angle of about 158° at apex of clavus, Sc+R fork slightly distad of Cu₁ fork, M fork slightly basad of level of node, Cu₁ fork just distad of union of claval veins, nine areoles on apical margin distad of stigmal cell, all except Cu₁b rather short; clavus terminating distad of middle of tegmen. Wings with R simple, M two-branched, Cu₁ three-branched.

Hamba perplexa (Walker)

(FIG. 83)

1857. *Cixius perplexus* Walker, *J. Linn. Soc. Lond. (Zool.)* **1**: 147.FIG. 83. *Hamba perplexa* (Walker)

a, vertex and pronotum; b, tegmen.

The figures are of the type. The genus is distinguished by the shape of the head and pronotum and by the tegminal venation. It is known only from Borneo, and is separated from *Betatropis* by the presence of latero-apical facets on the vertex and by the short apical areoles in the tegmen, as well as by the shape of the pronotal disk.

TALOKA Distant1907. *Taloka* Distant *Ann. Mag. nat. Hist.* (7) **19**: 280. Orthotype, *Brixia opaca* Walker.

Head with eyes distinctly narrower than pronotum. Vertex not declivous, broader across base than long in middle line (1.5:1), produced before eyes for a third of their length, median carina distinct, disk not depressed, anterior margin carinate, rect-angulately convex at apex, a relatively large and conspicuous triangular areolet at each latero-apical angle of head, lateral margins carinate, diverging basad, posterior margin broadly concave; frons slightly convex in profile, broader than long in middle line (nearly 1.2:1), widest part wider than base (1.6:1), basal margin slightly convex, median carina percurrent, slightly calloused at base, lateral margins carinate, slightly foliate laterad, straight or slightly convex to below level of antennae, thence rather strongly incurved to suture; clypeus as long as frons, medially and laterally carinate, rostrum with subapical segment shorter than apical, antennae subglobose, not sunk in a depression but distinctly roofed over by eyes, ocelli touching eyes, eyes markedly excavate beneath, not overlapping pronotum. Pronotum moderately long, not quite as long behind eyes as in middle line, anterior margin of disk convex-truncate, posterior margin angulately excavate (120°), median carina distinct, lateral carinae straight, each about 1.5 times as long as median carina, attaining hind margin, pronotum laterad of disk not inclined anteroventrally, two or three supernumerary carinae weakly present behind eyes, two carinae between eye and tegula on each side,

ventral margin of lateral lobes oblique; mesonotum longer than vertex and pronotum combined, tricarinate, tegulae not carinate, pro-tibiae shorter than pro-femora with trochanters, post-tibiae with a single spine basad of middle.

Tegmina about 2.7 times as long as broad, costal margin slightly convex, sutural margin forming a re-entrant angle of 150° at apex of clavus, Sc+R fork distad of Cur fork, M fork at level of node, Cur fork level with union of claval veins, Cura and M approximated at nodal line, Curb strongly convex distad of apex of clavus, seven areoles distad of stigmal cell around apical margin; clavus terminating distad of middle of tegmen.

Taloka opaca (Walker)

(FIG. 84)

1867. *Brixia opaca* Walker, *J. Linn. Soc. Lond. (Zool.)* 10:111.

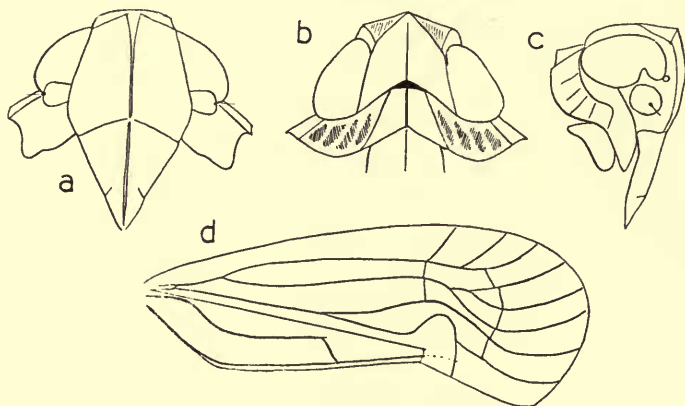


FIG. 84. *Taloka opaca* (Walker)

a, frons and clypeus; b, vertex and pronotum; c, head and pronotum in profile; d, tegmen.

The figures are of the type. *Taloka*, known only from New Guinea, is distinguished by the shape of the head and pronotum and by the tegminal venation. It is separated from *Gordiacea* by the form of the vertex, the ratio of lengths of the distal segments of the rostrum, and by the general proportions of the tegmina. In *Gordiacea*, moreover, the frons in profile is distinctly more convex, while the disk of the clypeus is slightly tumid, whereas in *Taloka* it is flat. The two genera are nevertheless very closely allied.

GORDIACEA Metcalf

1903. *Gordia* Melichar, *Hom. Fauna Ceylon*:43. Haplotype, *Gordia oculata* Melichar (nom. praeocc.).

1948. *Gordiacea* Metcalf, *Smith Coll. Gen. Cat. Hem.* 4 (10):17.

Head with eyes distinctly narrower than pronotum. Vertex not declivous, broader across base than long in middle line (nearly 1.2:1), produced before eyes for a seventh of their length, median carina distinct, disk slightly depressed, anterior margin carinate, truncate at apex, a rather small equilaterally-triangular areolet at each latero-apical angle of head, lateral margins carinate, moderately diverging basad,

posterior margin truncate or very shallowly concave; frons distinctly convex in profile, as broad as long in middle line or very slightly broader than long (less than 1.1:1), widest part twice as wide as base, basal margin truncate, median carina present, prominent at base, obsolete at apex, lateral margins carinate, distinctly foliate laterad, sinuately diverging to below level of antennae thence moderately incurved to suture, disk of frons slightly hollowed out; clypeus slightly shorter than frons, medially and laterally carinate, disk slightly convex, rostrum with subapical segment longer than apical, reaching mesotrochanters, antennae subglobose, not sunk in a depression but distinctly roofed over by eyes, ocelli touching eyes, eyes markedly excavate beneath, not overlapping pronotum. Pronotum moderately long, not as long behind eyes as in middle line, anterior margin of disk convex-truncate, posterior margin angulately excavate (130°), median carina distinct, lateral carinae straight, each about 1.5 times as long as median carina, attaining hind margin, pronotum laterad of disk not inclined anteroventrally, three supernumerary carinae on each side behind eyes, two carinae between eye and tegula on each margin, ventral margin of lateral pronotal lobes oblique; mesonotum longer than vertex and pronotum combined, tricarinate, tegulae not carinate, pro-tibiae shorter than pro-femora with trochanters, post-tibiae with a single spine basad of middle.

Tegmina 2.9 times as long as broad, costal margin slightly convex, sutural margin forming a re-entrant angle of 158° at apex of clavus, Sc+R fork basad of Cur fork, M forked at level of node, Cur fork level with union of claval veins, Cur and M approximated at level of nodal line, Curb strongly convex distad of apex of clavus, six marginal areoles distad of stigmal cell; clavus terminating distad of middle of tegmen. Wings with R simple, M two-branched, Cur three-branched.

***Gordiacea oculata* (Melichar)**

(FIG. 85)

1903. *Gordia oculata* Melichar, loc. cit.: 43.

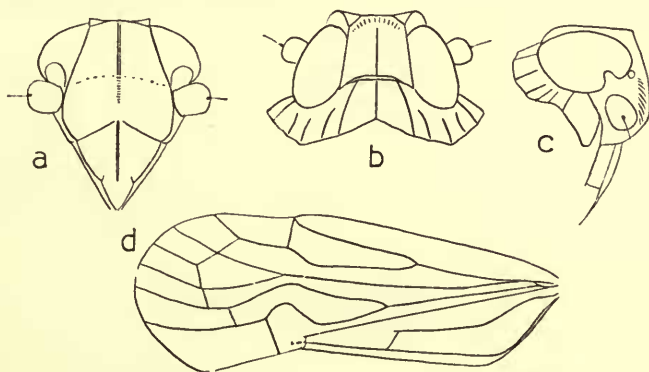


FIG. 85. *Gordiacea oculata* (Melichar)

a, frons and clypeus; b, vertex and pronotum; c, head and pronotum in profile; d, tegmen.

The figures are of a specimen in the British Museum. The genus is known only from Ceylon.

CYTHNA Kirkaldy

1906. *Cythna* Kirkaldy, *Bull. Hawaii. Sug. Pl. Ass. ent. Ser.* 1 (9):423. Haplotype, *Cythna laon* Kirkaldy, loc. cit.:423.

Head with eyes distinctly narrower than pronotum. Vertex very slightly declivous, broader across base than long in middle line (nearly 1.3:1), produced before eyes for rather more than a quarter of their length, median carina distinct, disk not or only slightly depressed, anterior margin carinate, subrectangulately convex at apex, a relatively large and conspicuous triangular areolet at each latero-apical angle of head, lateral margins carinate, diverging basad, posterior margin broadly concave; frons slightly convex in profile, longer in middle line than broad (1.1:1), widest part wider than base (2:1), basal margin truncate or slightly excavate, median carina percurrent, lateral margins carinate, slightly foliate laterad distally, straight to below level of antennae thence markedly incurved to suture; clypeus scarcely shorter than frons in middle line, medially and laterally carinate, rostrum with subapical segment equal to apical; antennae subglobose, slightly sunk in a depression, ocelli touching eyes, eyes not excavate, not overlapping pronotum. Pronotum moderately long, as long behind eyes as in middle line or slightly longer, anterior margin of disk convex-truncate, posterior margin angulately excavate (125°), median carina distinct, lateral carinae convex, each twice as long as median carina, attaining hind margin, pronotum laterad of disk not or scarcely inclined anteroventrally, two carinae between eye and tegula on each side, ventral margin of lateral lobes oblique; mesonotum longer than vertex and pronotum combined, tricarinate, tegulae not carinate, pro-tibiae shorter than pro-femora with trochanters, post-tibiae with a single spine basad of middle.

Tegmina about 2.8 times as long as broad, granulate, costal margin slightly convex, sutural margin forming a re-entrant angle of 145° at apex of clavus, Sc+R fork level with Cur fork or slightly distad, M fork just basad of level of node, Cur fork level with union of claval veins, eight or nine areoles around margin distad of stigmal cell; clavus terminating at middle of tegmen. Wings with R two-branched, M two-branched, Cur three-branched.

Cythna fusca Muir

(FIG. 86)

1927. *Cythna fusca* Muir, *Ins. Samoa*, 2 (1):18.

The figures are from Muir's type in the British Museum. The genus is near *Argeleusa* Kirkaldy as noted by Kirkaldy himself, but differs in the shape of the vertex. Its species, *laon* Kirkaldy and *fusca* Muir, are both Australasian.

BALLOMARIUS Jacobi

1941. *Ballomarius* Jacobi, *Zool. Jb.* 74:294. Orthotype, *Ballomarius terrenus* Jacobi, loc. cit. 295.

Head with eyes distinctly narrower than pronotum. Vertex slightly declivous, broader across base than long in middle line (1.4:1), produced before eyes for about a fifth of their length, median carina distinct, disk slightly depressed between median carina and margins, anterior margin carinate, convex, a small triangular areolet at

each latero-apical angle of head, lateral margins carinate, slightly diverging basad, posterior margin truncate; frons slightly convex in profile, longer in middle line than broad (2.0 to 1.5:1), widest part wider than base (about 1.6:1), basal margin subtruncate, median carina percurrent, lateral margins carinate, slightly foliate obliquely distally, straight to below level of antennae thence incurved to suture; clypeus three-quarters length of frons, medially and laterally carinate, rostrum with subapical

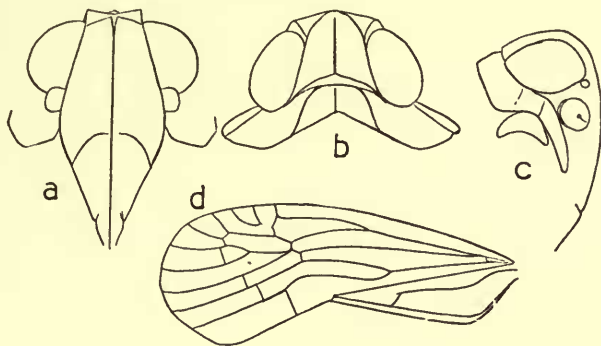


FIG. 86. *Cythna fusca* Muir

a, frons and clypeus; b, vertex and pronotum; c, head and pronotum in profile; d, tegmen.

segment shorter than apical, antennae subglobose, not sunk in a depression, ocelli separated from eyes, eyes shallowly excavate beneath, slightly overlapping pronotum. Pronotum moderately short, not quite as long behind eyes as in middle line, anterior margin of disk truncate, posterior margin angulately excavate (120°), median carina distinct, lateral carinae of disk straight, each twice as long as median carina, attaining hind margin, pronotum laterad of disk moderately inclined anteroventrally, margins not carinate, ventral margin of lateral pronotal lobes oblique; mesonotum longer than vertex and pronotum combined, tricarinate, pro-tibiae slightly longer than pro-femora with trochanters, or of equal length, post-tibiae with a single spine basad of middle.

Tegmina about 2.8 times as long as broad, costal margin slightly convex, sutural margin forming re-entrant angle of 150° at apex of clavus, Sc+R fork nearly level with Cui fork, M fork distinctly basad of level of node, on a line between node and apex of clavus, Cui fork level with union of claval veins, eight or nine areoles around apical margin distad of stigmal cell; clavus terminating not much distad of basal third of tegmen. Wings with R simple, M two-branched, Cui three-branched.

Ballomarius bilobatus sp. n.

(FIGS. 87, 88)

Female: length, 3.5 mm.; tegmen, 5.8 mm.

Testaceous; a spot below antennae piceous, a broad longitudinal line on each side of median carina of vertex, pronotum and mesonotum fuscous; lateral fields of mesonotum, abdomen, except at posterior margins, reddish-brown; legs slightly

infusate. Tegmina fuscous, translucent, all veins testaceous; wings transparent, slightly infumed. Posterior margin of seventh abdominate sternite produced posteriorly in a narrow lobe on each side of middle line; ventral lobes of eighth abdominal segment sinuately tapering distally, terminating in a point. Third valvulae

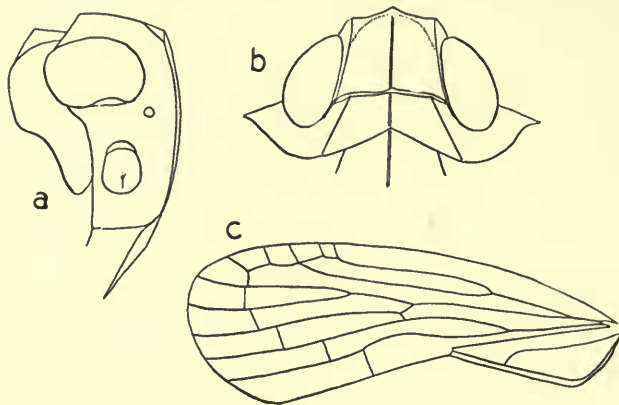


FIG. 87. *Ballomarius bilobatus* sp. n.
a, head in profile; b, vertex and pronotum; c, tegmen.

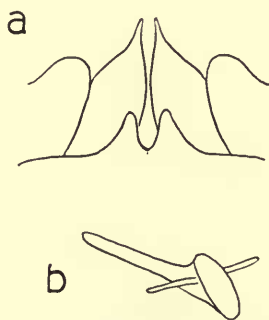


FIG. 88. *Ballomarius bilobatus* sp. n.
a, posterior margin of pregenital sternite, lateroventral portions of eighth segment and ventral lobes of first valvulae of ovipositor; b, sclerite at entrance to bursa copulatrix.

of ovipositor distinctly longer than broad, ventral margin straight or slightly convex, dorsal margin strongly convex, apical margin truncate-convex. Bursa copulatrix unornamented, vagina broadly tubular, a single spine, blunt at apex, on left side at entrance to bursa, attached basally to an oval sclerite with two horizontal rod-like appendages.

Described from one female taken at Fort Portal, Uganda, by H. Hargreaves (20 October 1926) Brit. Mus. 1948-549. Type in British Museum. *Ballomarius* is distinguished by the shape of the head and pronotum, and by the venation and the relatively short clavus. All the species assigned to this genus are either Oriental or African.

Ballomarius inermis sp. n.

(FIG. 89)

Female: length, 3.6 mm.; tegmen, 5.9 mm.

Testaceous marked with fuscous as in *B. bilobatus*.

Posterior margin of seventh abdominal sternite transverse or very broadly convex, ventral lobes of eighth abdominal segment broadly rounded at apex. Ovipositor with ventral lobes of first valvulae with inner margin straight, outer margin rounding distally into oblique apical margin; third valvulae fully 1.5 times longer than broad, incurved. Bursa copulatrix relatively small, unornamented; vagina large, with stout walls, a V-shaped sclerite near entrance to bursa, devoid of any processes.

Described from two females, one (Type) taken in the Gold Coast by A. E. Evans (1913) Brit. Mus. 1916-259, the other at Njala, Sierra Leone, by E. Hargreaves (8 December 1930) Brit. Mus. 1948-549. This species is readily distinguished from the foregoing by the characters of the abdomen and genitalia given. Type in British Museum.

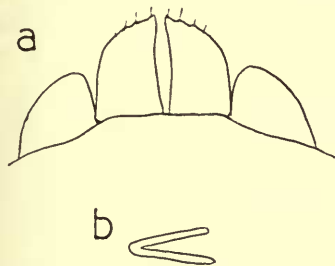


FIG. 89. *Ballomarius inermis* sp. n.
a, posterior margin of pregenital sternite, lateroventral portions of eighth segment and ventral lobes of first valvulae of ovipositor; b, sclerite at entrance to bursa copulatrix.

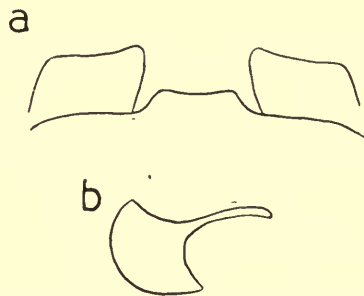


FIG. 90. *Ballomarius kawandanus* sp. n.
a, posterior margin of pregenital sternite and ventrolateral portions of eighth segment; b, sclerite at entrance to bursa copulatrix.

Ballomarius kawandanus sp. n.

(FIG. 90)

Female: length, 3.5 mm.; tegmen, 5.8 mm.

Testaceous marked with fuscous as in *B. bilobatus*.

Posterior margin of seventh abdominal sternite produced on median third in a rectangular lobe about five times as broad as long, with its distal margin slightly concave; ventral lobes of eighth abdominal segment distally angulate at apex but not produced in a point. Subvaginal plate very broad, occupying the whole of the ventral portion of the intersegmental membrane, little sclerotized. Bursa copulatrix devoid of ornamentation, a single spine, slightly curved and blunt at apex, at its entrance, arising from a sclerotized semicircular plate.

Described from one female collected at Kawanda, Uganda, by H. Hargreaves

(7 October 1939) Brit. Mus. 1948-549. Type in British Museum. This species is distinguished from the preceding by the characters of the abdomen and genitalia given above.

USANA Distant

1906. *Usana* Distant, *Fauna Brit. Ind. Rhynch.* 3:293. Orthotype, *Usana lineolalis* Distant.

Head with eyes distinctly narrower than pronotum. Vertex not declivous, broader across base than long in middle line (1.5:1), produced before eyes for about a third of their length, median carina distinct, prominent distally, disk not or scarcely depressed, anterior margin carinate, obtusely subangulately convex (about 130°), a distinct triangular areolet, much calloused, at each latero-apical angle of head, lateral margins carinate, straight, slightly diverging basad, posterior margin broadly concave; frons slightly convex in profile, longer in middle line than broad (about 1.2:1), widest part wider than base (1.6:1), basal margin truncate, median carina percurrent, lateral margins carinate, straight, diverging to below level of antennae thence gradually incurved to suture, not at all foliate; clypeus fully three-quarters of length of frons, medially and laterally carinate, rostrum with sub-apical segment shorter than apical, antennae subglobose, not sunk in a depression, ocelli narrowly separated from eyes, eyes scarcely excavate but slightly sinuate beneath, not overlapping pronotum. Pronotum moderately long, almost as long behind eyes as in middle line, anterior margin of disk broadly convex, posterior margin angulately excavate (115°), median carina distinct, lateral carinae straight, each 1.4 times as long as median carina, attaining hind margin, pronotum laterad of disk not inclined anteroventrally, a weak carina at margin between eye and tegula, ventral margin of lateral pronotal lobes slightly oblique; mesonotum longer than vertex and pronotum combined, tricarinate, tegulae not carinate, pro-tibiae as long as pro-femora with trochanters, post-tibiae with a single spine basad of middle.

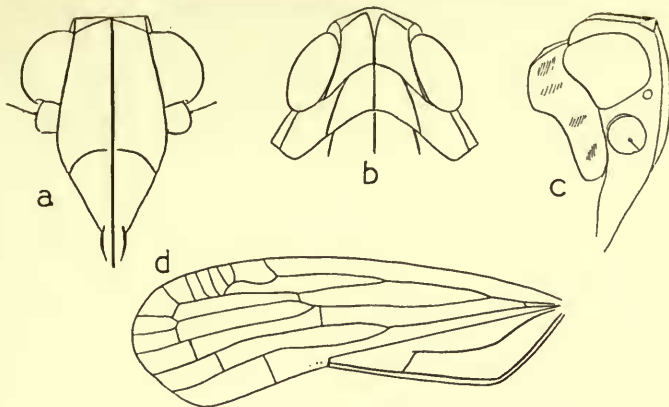
Tegmina 3.2 times as long as broad, costal margin slightly convex, sutural margin forming a re-entrant angle of 155° at apex of clavus, Sc+R fork level with Cu1 fork, or slightly distad, M fork slightly basad of node, Cu1 fork slightly distad of union of claval veins, four small cells in Sc at margin distad of stigmal cell, seven areoles distad of these around apical margin; clavus terminating distad of middle of tegmen. Wings with R simple, M two-branched, Cu1a three-branched.

Usana lineolalis Distant

(FIG. 91)

1906. *Usana lineolalis* Distant, loc. cit.:294.

The figures are of Distant's type from Tenasserim. *Usana* is distinguished by the shape of the head and pronotum and by the tegminal venation. It differs from the neotropical *Phypia* Stål in the proportions and profile of the frons, in the shape of the eye, in the branching of M 1+2, and in the veinlets distad of the node.

FIG. 91. *Usana lineolalis* Distant

a, frons and clypeus; b, vertex and pronotum in profile; c, head and pronotum in profile; d, tegmen.

OPSIPLANON Fennah

1945. *Opsiplanon* Fennah, *Proc. U.S. nat. Mus.* **95**:477. Orthotype, *Opsiplanon ornatifrons* Fennah.

Head with eyes slightly narrower than pronotum. Vertex slightly declivous, broader across base than long in middle line (about 1.5:1), produced before eyes for about a third of their length, median carina present, prominent basally, disk not or very lightly depressed, anterior margin carinate, subrectangulately convex at apex, a small triangular areolet at each latero-apical angle of head, lateral margins carinate, straight or slightly concave, diverging basad, posterior margin shallowly excavate; frons shallowly convex in profile, only slightly longer in middle line than broad, widest part not quite twice as wide as base, basal margin convex-truncate, median carina percurrent, lateral margins carinate, foliate laterad distally, straight and diverging to below level of antennae, thence moderately incurved to suture; clypeus as long as frons in middle line, medially and laterally carinate, slightly, tumid rostrum attaining post-trochanters, antennae subglobose, not sunk in a depression, ocelli narrowly separated from eyes, eyes excavate beneath, not overlapping pronotum. Pronotum moderately short, not as long behind eyes as in middle line, anterior margin of disk convex, posterior margin angulately excavate (115°), median carina distinct, lateral carinae of disk straight or slightly convex, each 1.5 times as long as median carina, attaining hind margin, pronotum laterad of disk not inclined antero-ventrally, three supernumerary carinae on each side behind eyes, two carinae at each lateral margin between eye and tegula, ventral margin of lateral pronotal lobes oblique; mesonotum longer than vertex and pronotum combined, tricarinate, post-tibiae with a single spine basad of middle.

Tegmina about 2.9 times as long as broad, costal margin slightly convex, sutural margin forming a re-entrant angle of 155° at apex of clavus, Sc+R+M fork about two-ninths from base, Sc+R fork near stigma, M fork at level of node, Cur fork level with union of claval veins, stigmal cell small, quadrate, eight areoles along apical

margin distad of it; clavus terminating distinctly distad of middle of tegmen. Wings with R simple, M two-branched, Cu1 three-branched.

Ventral lobes of first valvulae of ovipositor almost as broad as long, apical margin rounded or oblique, dentate; third valvulae quadrate, produced into a short lobe at ventral end of apical margin.

***Opsiplanon ornatifrons* Fennah**

(FIG. 92)

1945. *Opsiplanon ornatifrons* Fennah, loc. cit.:477.

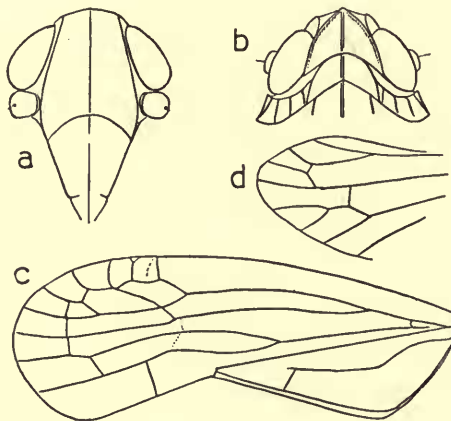


FIG. 92. *Opsiplanon ornatifrons* Fennah.

a, frons and clypeus; b, vertex and pronotum; c, tegmen; d, apex of wing.

The figures are of the type species. In the original description it was stated that Sc and R separated one-seventh from the base. This should be emended as given above. *Opsiplanon* is distinguished by the carination of the vertex, the proportions of the frons and clypeus, and by the tegminal venation. Its two species, *ornatifrons* Fenn. and *nemorosus* Fenn., are structurally very similar; it is possible that the prominent luteous spots along the sides of the veins in the corium represent a generic character. The genus occurs in Trinidad but not in the Lesser Antilles.

PARARGELEUSA gen. n.

Head with eyes a little narrower than pronotum. Vertex not or only slightly declivous, broader across base than long in middle line (1.2:1), produced before eyes for half their length, median carina distinct throughout, disk only slightly depressed between median carina and margins, anterior margin carinate, subrectangulately convex, a relatively large triangular areolet at each latero-apical margin of head, lateral margins straight, carinate, diverging basad, posterior margin excavate, truncate behind disk; frons slightly convex in profile, as broad as long in middle line, widest part wider than base (1.7:1), basal margin shallowly convex, median carina percurrent, lateral margins carinate, not foliate distally, sinuately expanding to

below level of antennae thence markedly incurved to suture, disk not depressed; clypeus fully three-quarters of length of frons, medially and laterally carinate, antennae subglobose, not sunk in a depression but slightly roofed over by eye, ocelli only narrowly separated from eyes, eyes excavated beneath, moderately overlapping pronotum. Pronotum short, not as long behind eyes as in middle line, anterior margin of disk truncate, posterior margin angulately excavate (120°), median carina distinct, lateral carinae of disk straight, each nearly three times as long as median carina, attaining hind margin, pronotum laterad of disk markedly inclined antero-ventrally, lateral margins not carinate, ventral margin of lateral pronotal lobes oblique; mesonotum longer than vertex and pronotum combined, tricarinate, pro-tibiae shorter than pro-femora with trochanters, post-tibiae with a single spine basad of middle.

Tegmina about three times as long as broad, costal margin slightly convex, sutural margin forming a re-entrant angle of about 155° at apex of clavus, Sc+R fork slightly distad of Cu1 fork, M forked about level with node, Cu1 fork about level with union of claval veins, about eight areoles around apical margin distad of stigmal cell; clavus terminating at middle of tegmen.

Type species, *Parargeleusa trispinosa* sp. n.

***Parargeleusa trispinosa* sp. n.**

(FIG. 93)

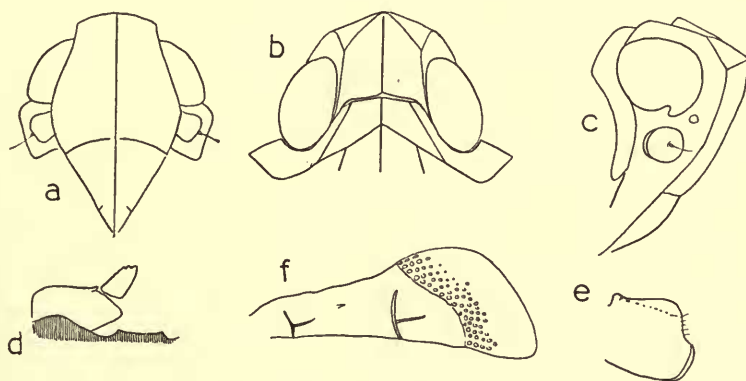


FIG. 93. *Parargeleusa trispinosa* gen. et sp. n.

a, frons and clypeus; b, vertex and pronotum; c, head and pronotum in profile; d, right half of female genitalia in ventral view; e, third valvula of ovipositor; f, vagina and bursa copulatrix.

Female: length, 3.0 mm.; tegmen, 3.1 mm.

Testaceous to pale fuscous, disk of vertex and mesonotum rather more deeply infusate. Tegmina translucent, yellowish-brown, three brown oblique spots in costal cell; stigma, apical areoles and distal half of subapical areoles infusate, apical margin sometimes red. Wings smoky, margined with red.

Seventh abdominal sternite of female with posterior margin slightly produced posteriorly in median third. Ventral lobes of eighth segment angulate at lower

margin. Ovipositor with ventral lobes of first valvulae straight on inner margin, oblique, rounding to apex on outer margin, apical margin coarsely dentate; third valvulae quadrate, ventral margin straight, dorsal margin convex, apical margin produced in a convex lobe in its lower half. Bursa copulatrix beset uniformly with minute rings, not ornamented with sclerites, vagina relatively large, bearing two T-shaped sclerites and a small spine midway between them.

Described from three females collected at Camp 2, 2,000 ft., Sabron, Cyclops Mts., Dutch New Guinea, by L. E. Cheeseman (1936) Brit Mus. 1936-271. *Parargeleusa* is distinguished by the shape of the head and pronotum and by the tegminal venation. It differs from *Argeleusa* in the characters given in the key, and from *Cythna* and *Nephelia* in the slope of the frontal disk and the absence of marginal carinae on the pronotum.

ARGELEUSA Kirkaldy

1906. *Argeleusa* Kirkaldy, *Bull. Hawaii. Sug. Ass. ent. Ser.* 1 (9):423. Haplotype, *Argeleusa kurandae* Kirkaldy.

Head with eyes slightly narrower than pronotum. Vertex not or slightly declivous, as broad across base as long in middle line, produced before eyes for less than a quarter their length, median carina distinct, disk slightly depressed between median carina and margins, anterior margin carinate and calloused, acutely convex on its discal side, broadly convex along its junction with frons, a long triangular areolet, only shallowly depressed in middle, at each latero-apical angle of head, lateral margins carinate and more or less calloused, subparallel between eyes, posterior margin concave or angulately emarginate; frons slightly convex in profile, slightly longer in middle line than broad, widest part twice as wide as base, basal margin slightly concave, median carina percurrent, lateral margins carinate, scarcely foliate laterad distally, diverging straight or slightly concave to below level of antennae thence incurved to suture; clypeus about three-quarters of length of frons, medially and laterally carinate, antennae subglobose, not sunk in a depression, ocelli contiguous with eyes, eyes flattened but not excavated beneath, only slightly overlapping pronotum. Pronotum moderately short, about as long behind eyes as in middle line, anterior margin of disk broadly convex, posterior margin angulately excavate (115°), median carina distinct, lateral carinae of disk straight or slightly convex, each about twice as long as median carina, attaining hind margin, pronotum laterad of disk not or only slightly inclined anteroventrally, an indication of three supernumerary carinae behind eyes, lateral margins carinate, ventral margin of lateral pronotal lobes oblique; mesonotum longer than vertex and pronotum combined, tricarinate, pro-tibiae sub-equal to pro-femora with trochanters, post-tibiae with a single spine basad of middle.

Tegmina about three times as long as broad, costal margin slightly convex, sutural margin forming a re-entrant angle of about 150° at apex of clavus, Sc+R forked at about same level as Cur and union of claval veins, M forked at level of node, veins prominent, granulate, eight areoles around apical margin distad of stigmal cell; clavus terminating distad of middle.

***Argeleusa kurandae* Kirkaldy**

(FIG. 94)

1906. *Argeleusa kurandae* Kirkaldy, loc. cit.: 423.

The figures are of a specimen in the British Museum.

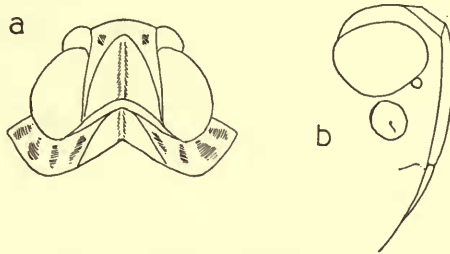


FIG. 94. *Argeleusa kurandae* Kirkaldy.
a, vertex and pronotum; b, head in profile.

EPIUSANA gen. n.

Head with eyes rather narrower than pronotum. Vertex not declivous, broader across base than long in middle line (1.2:1), produced before eyes for about three-eighths of their length, median carina present throughout, anterior margin carinate, forming a slightly truncated angle of 90° at apex, lateral margins straight, diverging basad, posterior margin subtruncate or very shallowly concave, disk scarcely depressed, a distinct triangular areolet at each latero-apical angle of head; frons slightly convex in profile, longer in middle line than broad (1.8:1), widest part about 1.5 times width at base, median carina percurrent, lateral margins carinate, slightly convex to below level of antennae thence gradually incurved to suture, not foliate, disk not depressed; clypeus half as long as frons, medially and laterally carinate; rostrum short, scarcely surpassing mesotrochanters, subapical segment almost as long as apical; antennae subglobose, not sunk in a depression, ocelli very narrowly separated from eyes, eyes excavate beneath, slightly overlapping pronotum. Pronotum moderately long, anterior margin of disk convex-truncate, posterior margin broadly concave, median carina present, lateral carinae of disk straight, each twice as long as median carina, attaining hind margin, pronotum laterad of disk moderately inclined anteroventrally, ventral margin of lateral lobes oblique; mesonotum longer than vertex and pronotum together, distinctly tricarinate, pro-tibiae about as long as pro-femora with trochanters.

Tegmina three times as long as broad, Sc+R fork level with Cu₁ fork, both about level with union of claval veins, M forked only very slightly basad of level of node, M₁+2 apparently forked at apical line of transverse veins, or close to it, five areoles in Sc and R at margin distad of stigmal cell, apical areoles shorter than sub-apical but markedly longer than broad; clavus terminating at middle of tegmen or scarcely basad of middle.

Type species, *Epiusana rugiceps* sp. n.

***Epiusana rugiceps* sp. n.**

(FIG. 95)

Female: length, 3.5 mm.; tegmen, 4.4 mm.

Vertex with three longitudinal ridges in anterior half, one on each side of median carina.

Pale yellow; median carina and sublateral carinae of vertex and pronotum opaque yellowish-white, eyes testaceous; a line on each side of median carina of vertex and a linear spot laterad of each sublateral carina of vertex black. Tegmina very pale yellowish-white with a trace of pale brown at apex of costal cell.

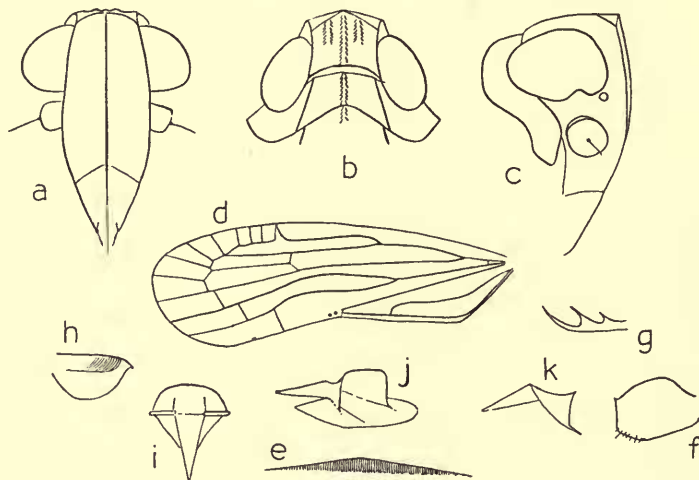


FIG. 95. *Epiusana rugiceps* gen. et sp. n.

a, frons and clypeus; *b*, vertex and pronotum; *c*, head and pronotum in profile; *d*, tegmen; *e*, posterior margin of pregenital sternite; *f*, third valvula of ovipositor; *g*, apex of first valvula; *h*, second valvula, lateral view; *i*, *j*, *k*, dorsal, posterolateral, and lateral views of sclerite at entrance to bursa copulatrix.

Anal segment of female as broad as long or broader, telson exceeding apical margin by half its length. Posterior margin of seventh abdominal sternite of female transverse-convex. Ovipositor with first valvulae bearing a single prominent spine at apex, a second three-quarters of length of preceding basad of it, a third spine, broader and smaller, equidistant basally; second valvulae with dorsal margin horizontal, sclerotized, terminating apically in a small deflexed point, ventral margin strongly convex; third valvulae in profile subquadrate, ventral margin straight, apical margin subangulately convex, dorsal margin convex, a horizontal lobe dorsomesally. Bursa copulatrix uniformly covered with delicate rings, unarmed with sclerites; a more or less hollow spine arising from an approximately semicircular sclerite near entrance to bursa.

Described from one female collected on Mt. Mlanje, Nyasaland, by S. A. Neave (23 February 1913) Brit. Mus. 1913-140. Type in Brit. Mus. This genus differs from *Usana* in the width of the pronotum behind the eyes (this being relatively shorter than

in *Usana*), in the proportions of the frons and clypeus, and in the shorter rostrum, as well as in the relative length of the clavus. It is also separated from *Ballomarius* by this last character, and by the position of the forks of M in the tegmen. It differs in less degree from *Ballomarius* in the shape of the pronotal disk and the ratio of its length to that of the frons, as well as in the shorter rostrum. It is not known whether the curious ridges on the vertex have more than specific value. As the hind legs are missing in the type, the condition of the post-tibial spine can only be surmised: it is unlikely that it differs from that in *Usana* and *Ballomarius*.

PHENELIA Kirkaldy

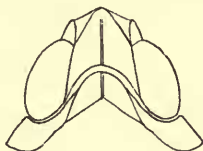
1906. *Phenelia* Kirkaldy, *Bull. Hawaii. Sug. Ass. ent. Ser.* 1 (9):417, 421. Haplotype, *Phenelia elidipteroides* Kirkaldy.

Head with eyes a little narrower than pronotum. Vertex not or scarcely declivous, broader across base than long in middle line (1.3:1), produced before eyes for about a third of their length, median carina percurrent, prominent, disk slightly depressed, anterior margin carinate, acutely convex, forming an angle of about 70° at apex, anterior margin of head shallowly convex or subtruncate, a distinct triangular areolet at each latero-apical angle of head, lateral margins carinate, diverging basad, posterior margin broadly concave; frons slightly convex in profile, longer in middle line than broad, widest part twice as wide as base, basal margin slightly concave, median carina percurrent, lateral margins carinate, very slightly foliate distally, straight or slightly convex to below level of antennae, thence moderately incurved to suture; clypeus three-quarters of length of frons, medially and laterally carinate, antennae subglobose, not sunk in a depression, ocelli scarcely separated from eyes, eyes slightly overlapping pronotum. Pronotum short, shorter behind eyes than in middle line, anterior margin of disk convex-truncate, posterior margin angulately excavate (about 110°), median carina distinct, lateral carinae straight or slightly sinuate, each 1.5 times as long as median carina, attaining hind margin, pronotum laterad of disk markedly inclined anteroventrally, a weak carina at lateral margin between eye and tegula, ventral margin of lateral pronotal lobes slightly oblique; mesonotum longer than vertex and pronotum combined, tricarinate, pro-tibiae subequal to pro-femora with trochanters, post-tibiae unarmed or with a minute single spine basad of middle.

Tegmina about three times as long as broad, not granulate, costal margin slightly convex, sutural margin forming a re-entrant angle of about 155° at apex of clavus, Sc+R fork slightly distad of or about level with Cu1 fork, both nearly level with union of claval veins, M forked at level of node, eight areoles around apical margin distad of stigmal cell, three areoles markedly longer than broad, clavus terminating distad of middle of tegmen.

Phenelia elidipteroides Kirkaldy

(FIG. 96)

1906. *Phenelia elidipteroides* Kirkaldy, loc. cit.: 422.FIG. 96. *Phenelia elidipteroides* Kirkaldy.
Vertex and pronotum.

When he redefined the genus in 1907 Kirkaldy recognized two subgenera (here treated as genera). For his subgenus *Phenelia* he designated *elidipteroides* Kirk. as the type species.

NEPHELIA Kirkaldy

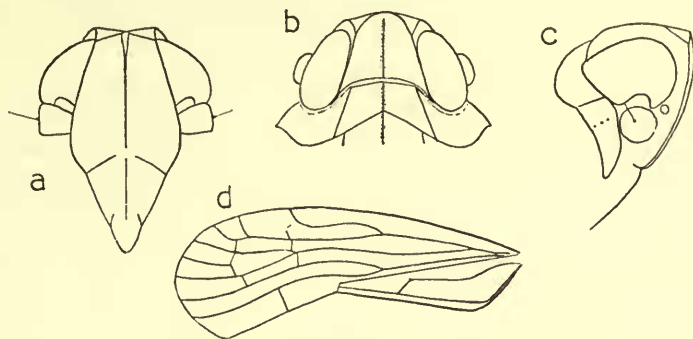
1907. *Nephelia* Kirkaldy, *Bull. Hawaii. Sug. Ass. ent. Ser.* 3: 117. Orthotype, *Nephelia bicuneata* Kirkaldy, loc. cit.: 117.

Head with eyes rather narrower than pronotum. Vertex not or scarcely declivous, broader across base than long in middle line (1.3:1), produced before eyes for about a fifth of their length, median carina present, not prominent, disk scarcely depressed, anterior margin strongly convex, anterior margin of head more weakly so, a rather obscure triangular areolet at each latero-apical angle of head, lateral margins carinate, diverging basad, posterior margin broadly concave or subtruncate, frons slightly convex in profile, slightly longer in middle line than broad (1.1:1), widest part 1.9 times width at base, basal margin truncate or slightly excavate, median carina percurrent, lateral margins carinate, very slightly foliate laterad distally, straight or slightly convex to below level of antennae, thence incurved to suture, clypeus about three-quarters of length of frons, medially and laterally carinate, antennae subglobose, not sunk in a depression, ocelli narrowly separated from eyes, eyes not or scarcely overlapping pronotum. Pronotum moderately short, about two-fifths of length of head in middle line, as long behind eyes as in middle line, anterior margin of disk subtruncate, posterior margin angulately excavate (120°), median carina distinct, lateral carinae slightly concave, each about twice as long as median carina, attaining hind margin, pronotum laterad of disk moderately inclined antero-ventrally, two carinae, one feeble, at lateral margins between eyes and tegula, ventral margin of lateral pronotal lobes very slightly oblique; mesonotum longer than vertex and pronotum combined, tricarinate, pro-tibiae slightly shorter than pro-femora with trochanters, post-tibiae armed with a single spine basad of middle.

Tegmina about three times as long as broad, not granulate, costal margin slightly convex, sutural margin forming a re-entrant angle of about 150° at apex of clavus, Sc+R fork about level with Cu1 fork, both slightly distad of union of claval veins, M forked at level of node, seven or eight areoles, distinctly longer than broad, around apical margin distad of stigmal cell; clavus terminating distad of middle of tegmen.

Nephelia tristis Kirkaldy

(FIG. 97)

1907. *Nephelia tristis* Kirkaldy, loc. cit.: 117.FIG. 97. *Nephelia tristis* Kirkaldy.

a, frons and clypeus; b, vertex and pronotum; c, head and pronotum in profile; d, tegmen.

It is possible that the pair of pallid wedge-like markings, narrowly bordered with fuscous, in the costal cell, will prove to be generic characters: they are present in the two known species, *bicuneata* and *tristis* Kirk. The genus is at present known only from Fiji. The figures are of a topotype in the Bishop Museum, Honolulu.

CALLINESIA Kirkaldy

1907. *Callinesia* Kirkaldy, *Bull. Hawaii. Sug. Ass. ent. Ser.* 3: 116, 118. Orthotype, *Callinesia pulchra* Kirkaldy.

Head with eyes distinctly narrower than pronotum. Vertex declivous, very slightly longer in middle line than broad across base, produced before eyes for about a quarter of their length, median carina present only in basal half, disk hollowed out, anterior margin carinate, convex-truncate in genotype, apparently angulately convex in other species, a triangular areolet at each latero-apical angle of head, lateral margins carinate, slightly foliate, subparallel (genotype) or diverging basad, posterior margin subtruncate or broadly concave; frons distinctly convex in profile, markedly incurved to frontoclypeal suture throughout its width, longer in middle line than broad (1.1:1 genotype), widest part wider than base (approximately 2:1), basal margin truncate, median carina present basally, more or less obsolete distally, lateral margins carinate, diverging straight to below level of antennae thence incurved strongly to suture, slightly foliate distally; suture distinctly impressed, clypeus two-thirds of length of frons, medially and laterally carinate, median carina rather broad or weak, rostrum with subapical segment as long as apical, reaching meso-trochanters, antennae relatively large, subglobose, not sunk in a depression but roofed over by eyes, ocelli touching eyes, eyes strongly excavate below, moderately overlapping pronotum. Pronotum short, not quite as long behind eyes as in middle line, anterior margin of disk convex-truncate, posterior margin angulately excavate (100°), median carina distinct, lateral carinae straight or slightly concave, each twice as long

as median carina, attaining hind margin, pronotum laterad of disk distinctly inclined anteroventrally, two carinae at lateral margins between eye and tegula, ventral margin of lateral pronotal lobes slightly oblique; mesonotum longer than vertex and pronotum combined, tricarinate, tegulae not carinate; pro-tibiae equal to or slightly shorter than pro-femora with trochanters, post-tibiae with a single spine basad of middle.

Tegmina 2.9 times as long as broad, costal margin slightly convex, sutural margin forming a re-entrant angle of 150° at apex of clavus, Sc+R fork about level with Cur fork, both distad of union of claval veins but basad of apex of clavus, M fork level with node, seven or eight areoles, longer than broad, distad of stigmal cell around apical margin; clavus terminating distad of middle of tegmen. Wings with R simple, M two-branched, Cur three-branched.

***Callinesia pulchra* Kirkaldy**

(FIG. 98)

1907. *Callinesia pulchra* Kirkaldy, loc. cit.: 118, pl. 9, fig. 17.

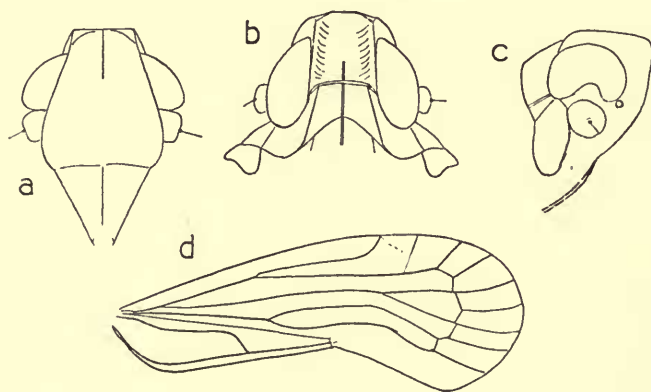


FIG. 98. *Callinesia pulchra* Kirkaldy.

a, frons and clypeus; b, vertex and pronotum; c, head and pronotum in profile; d, tegmen.

The figures are of a cotype in the British Museum. *Callinesia* is distinguished by the structure of the head and pronotum and by the tegminal venation. Kirkaldy included among the generic characters a black spot on the mesopleura. His four species, *pulchra*, *ornata*, *venusta*, and *pusilla*, are from Fiji. Melichar has transferred *Paratangia fimbriolata* Mel. to this genus.

NECHO Jacobi

1910. *Necho Jacobi*, *Wiss. Ergeb. Schwedischen Zool. Exped. Kilimanjaro-Meru* 1905-1906, 12 (7): 105. Orthotype, *Necho naevius*, *ibid.*: 105.

Head with eyes narrower than pronotum. Vertex not declivous, broader across base than long in middle line (2:1), produced before eyes for about a third of their length, median carina present throughout, disk only slightly depressed, anterior

margin carinate, angulately convex at apex (140°), a small triangular facet at each latero-apical angle of head, lateral margins carinate, straight, diverging basad, posterior margin broadly angulately excavate (140°), frons slightly convex in profile, longer in middle line than broad ($1.2:1$) widest part twice as wide as base, basal margin convex-truncate, median carina percurrent, slightly thickened at base, disk not depressed but markedly incurved to suture, lateral margins carinate, straight and diverging to below level of antennae, thence moderately incurved to suture; suture impressed, clypeus two-fifths of length of frons in middle line, medially and laterally carinate, slightly tumid, antennae subglobose, not sunk in a depression, ocelli distinctly separated from eyes, eyes not excavate beneath, or scarcely so, only slightly overlapping pronotum, if at all. Pronotum moderately short, not quite as long behind eyes as in middle line, anterior margin of disk broadly convex, posterior margin angulately excavate (130°), median carina distinct, lateral carinae of disk straight, each 1.3 times as long as median carina, attaining hind margin, pronotum laterad of disk not or scarcely inclined anteroventrally, three supernumerary carinae on each side behind eyes, two carinae at each lateral margin between eye and tegula, ventral margins of lateral pronotal lobes oblique; mesonotum longer than vertex and pronotum combined, tricarinate, pro-tibiae slightly shorter than pro-femora with trochanters, post-tibiae with a single spine basad of middle.

Tegmina about two and a half times as long as broad, costal margin slightly convex, sutural margin forming a re-entrant angle of 150° at apex of clavus, Sc obscure, apparently separated from R near base, M forked at level of node, Cur forked at level of union of claval veins; stigmal cell longer than broad, eight areoles along apical margin distad of it; clavus terminating at middle of tegmen.

Necho may well be congeneric with *Cnidus* Stål; it is also extremely close in superficial characters to the neotropical *Opsiplanon*. It apparently differs from the latter in the relatively shorter clypeus, the entire eyes, the relatively broader pronotal disk, the shape of the stigmal cell and the unbranched condition of M_1+2 before the apical line of transverse veins. The two species of *Necho*, *naevius* and *marmoratus* Jacobi, are known only from East Africa.

MAGADHA Distant

1906. *Magadha* Distant, *Fauna Brit. Ind. Rhynch.* **3**: 290. Orthotype, *Cixius flavisigna* Walker.

Head with eyes distinctly narrower than pronotum. Vertex not declivous, broader across base than long in middle line ($1.8:1$), produced before eyes for a third of their length, median carina distinct basally, obsolete distally, disk markedly depressed, anterior margin carinate, angulately convex (about 120°) at apex, a triangular areolet at each latero-apical angle of head, lateral margins carinate, slightly foliate, diverging basad, posterior margin broadly concave; frons slightly convex in profile, longer in middle line than broad ($1.5:1$), widest part almost twice as wide as base, basal margin truncate or slightly excavate, median carina percurrent, lateral margins carinate, slightly foliate laterad distally, sinuately diverging to below level of antennae thence gradually incurved to suture; clypeus four-fifths of length of frons in middle line, medially and laterally carinate, rostrum with subapical segment distinctly shorter than apical ($1.1:3$), antennae subglobose, not sunk in a depression, ocelli separated

from eyes, eyes not excavate, not or scarcely overlapping pronotum. Pronotum fairly long, a little shorter behind eyes than in middle line, anterior margin of disk convex-truncate, posterior margin subangulately excavate (about 115°) median carina distinct, lateral carinae slightly convex, each twice as long as median carina, attaining hind margin, pronotum laterad of disk only slightly inclined antero-ventrally, lateral margins carinate between eye and tegula, ventral margins of lateral pronotal lobes markedly oblique; mesonotum longer than vertex and pronotum combined, tricarinate, anterior third of disk minutely granulate, pro-tibiae shorter than pro-femora with trochanters, post-tibiae with a single spine about one quarter from base.

Tegmina about 3.2 times as long as wide, costal margin slightly convex, sutural margin forming a re-entrant angle of 155° at apex of clavus, Sc+R fork level with Cur fork, both almost level with union of claval veins, M fork level with node, eight areoles around apical margin distad of stigmal cell; clavus terminating distad of middle of tegmen. Wings with R two-branched, M two-branched, Cur three-branched.

Magadha flavisigna (Walker)

1851. *Cixius flavisigna* Walker, *List Hom. Ins. Brit. Mus.* 2:348.

This species has the carinae of the vertex and pronotum a little less raised and the pronotum slightly longer than in *nebulosa* Dist.

Magadha nebulosa Distant

(FIG. 99)

1906. *Magadha nebulosa* Distant, *Fauna Brit. Ind. Rhynch.* 3:291.

The figures are of Distant's holotype.

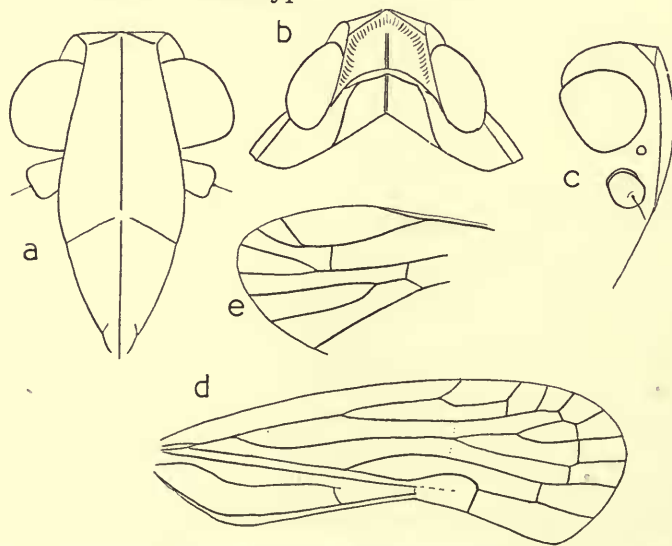


FIG. 99. *Magadha nebulosa* Distant.

frons and clypeus; b, vertex and pronotum; c, head in profile; d, tegmen; e, apex of wing.

KEMPIANA Muir

1922. *Kempiana* Muir, *Rec. Indian Mus.* **24**:354. Orthotype, *Kempiana maculata* Muir.

Head with eyes distinctly narrower than pronotum. Vertex not declivous, broader across base than long in middle line (about 1.5:1), produced before eyes for two-fifths of their length, median carina absent, or only faintly indicated at base, disk hollowed out, anterior margin carinate, angulately convex (about 140°) at apex, a minute to evanescent triangular areolet at each latero-apical angle of head, lateral margins carinate, subfoliate, moderately diverging basad, posterior margin angulately excavate (130°); frons slightly convex in profile, longer in middle line than broad (1.5:1), widest part about twice as wide as base, basal margin truncate or slightly excavate, median carina percurrent, lateral margins carinate, slightly foliate obliquely distally, sinuately diverging to below level of antennae thence gradually incurved to suture; clypeus two-thirds of length of frons in middle line, medially and laterally carinate, antennae subglobose, not sunk in a depression, ocelli large, touching eyes, eyes not or scarcely overlapping pronotum. Pronotum moderately short, shorter behind eyes than in middle line, anterior margin of disk convex, posterior margin rectangulately emarginate, median carina distinct, lateral carinae slightly convex, each twice as long as median carina, attaining hind margin, pronotum laterad of disk only slightly inclined anteroventrally, lateral margins carinate between eye and tegula, ventral margins of lateral pronotal lobes oblique; mesonotum more than twice as long as vertex and pronotum combined, tricarinate, anterior third of disk minutely and evenly granulate, this area separated from posterior portion of disk by a transverse callus, lateral fields of mesonotum similarly granulate in part, tegulae carinate, pro-tibiae as long as pro-femora with trochanters, post-tibiae with a single spine basad of middle.

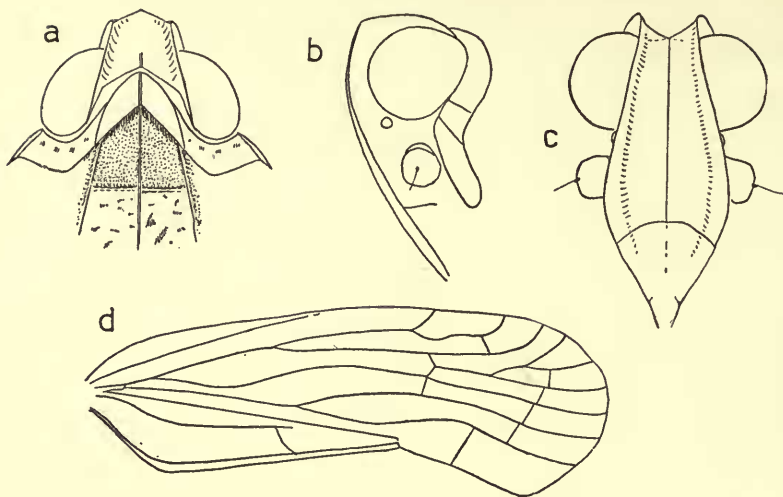
Tegmina 3.2 times as long as broad, costal margin distinctly convex in basal portion, sutural margin forming a re-entrant angle of 150° at apex of clavus, costal vein with the membrane forming a distinct costal area, Sc+R fork slightly basad of Cur fork, both scarcely distad of union of claval veins, M forked level with node, eight areoles around apical margin distad of stigmal cell; clavus terminating distad of middle of tegmen.

***Kempiana maculata* Muir**

(FIG. 100)

1922. *Kempiana maculata* Muir, loc. cit.:354.

The figures are of a specimen in the British Museum. *Kempiana*, as noted by Muir, is very close to *Magadha*. The type species differ in the proportions of the vertex and in the basal portion of the costal margin of the tegmina, both occur in the same geographical region, and it is not impossible that intermediate forms will be discovered

FIG. 100. *Kempiana maculata* Muir.

a, vertex, pronotum and anterior portion of mesonotum; b, head in profile; c, frons and clypeus; d, tegmen.

CATONIA Uhler

1895. *Catonia* Uhler, *Proc. zool. Soc. Lond.*:61. Logotype, *Catonia intricata* Uhler.

Head with eyes distinctly narrower than pronotum. Vertex not or only slightly declivous, broader across base than long in middle line (genotype, 1.3:1), produced before eyes for a third of their length, median carina present on basal three-quarters, absent from apical quarter, disk hollowed, anterior margin carinate, rectangulately convex at apex, a prominent oblique triangular areolet at each latero-apical angle of head, lateral margins carinate, subfoliate, moderately diverging basad, posterior margin angulately excavate (110°), frons slightly convex in profile, longer in middle line than broad (1.1:1), widest part nearly three times as wide as base, basal margin slightly excavate, median carina percurrent, lateral margins carinate, distinctly foliate laterad distally, diverging to below level of antennae thence gradually incurved to suture; clypeus as long as frons in middle line, medially and laterally carinate, rostrum with subapical joint longer than apical or subequal, antennae subglobose, sunk in a depression, ocelli touching eyes, eyes minutely excavate, moderately overlapping pronotum. Pronotum short, shorter behind eyes than in middle line, anterior margin of disk truncate, posterior margin angulately excavate (120°), median carina distinct, lateral carinae straight or slightly concave, each more than twice as long as median carina, scarcely attaining hind margin, pronotum laterad of disk strongly inclined anteroventrally, posterior third only moderately so, a more or less feeble indication of three supernumerary carinae behind eyes, two very obscure carinae at each lateral margin between eye and tegula, ventral margin of lateral pronotal lobes transverse; mesonotum longer than vertex and pronotum combined, tricarinate, tegulae not carinate, pro-tibiae shorter than pro-femora with trochanters, post-tibiae with a single spine basad of middle.

Tegmina three times as long as broad, costal margin slightly convex, sutural margin forming a re-entrant angle of about 150° at apex of clavus, Sc+R fork level with CuI fork, both only slightly distad of union of claval veins, M fork at level of node, nine areoles around apical margin distad of stigmal cell; clavus terminating distad of middle of tegmen. Wings with R two-branched, M two-branched, CuI three-branched.

Anal segment of female almost twice as broad as long, excluding anal style; anal foramen large, anal style spatulate. Subvaginal plate quadrate, ventral and lateral margins sclerotized and pigmented. Ventral lobes of first valvulae approximately triangular, sometimes with a lobe attached laterally at base. Bursa copulatrix ornamented with sclerotized and unpigmented rings with walls of varying thickness according to species, each ring beset with a number of minute papillae.

Egg ovoid, 1.8 times as long as wide, surface smooth, micropyle surrounded by a ring of finger-like processes of equal length and joined in pairs.

The type species of *Catonia* Uhler has generally been accepted as *nava* Say on the basis of Van Duzee's 1917 designation. The earliest type fixation for this genus, however, is apparently that of Van Duzee (Van Duzee, 1907) which is embodied under the genus *Catonia* Uhler (accompanied by a bibliographical citation) in the following sentence: 'All, including *intricata*, the type species, have a minute spine. . . .'

Catonia is the most widespread of West Indian Achilid genera, and has species in every island: as is evident from the specific differences it includes several distinct groups of species, each of which, when investigated more fully, may have to be recognized as a subgenus. For the present the writer recognizes two subgenera separated as follows:

- 1 (2) Vertex distinctly broader than long; greatest width of frons about 1.5 times width at base **Pyren** subgen. nov.
- 2 (1) Vertex about as long as broad; greatest width of frons fully twice width at base. **Catonia** subgen. nov.

The subgenus *Catonia* (type species *C. intricata* Uhler) includes species with a sclerotized plate on the wall of the bursa copulatrix and species without such a plate. In *Pyren* (type species *Catonia saltator*, described below) the bursa copulatrix is unarmed.

***Catonia intricata* Uhler**

(FIG. 101)

1895. *Catonia intricata* Uhler, *Proc. zool. Soc. Lond.*:61.

Female: length, 4.1 mm.; tegmen, 4.6 mm.

Tegmina with Sc+R forking just basad of middle, CuI forking slightly distad of Sc+R fork, CuIb simple, its cell not divided. Wings with apical cell R1 with a stalk distad of R-M transverse vein.

Fuscous, uniformly and minutely speckled testaceous or pallid, but dark colour predominant. Tegmina fuscous, speckled uniformly on corium; a spot in costal cell at base, a broad interrupted obliquely transverse fascia from distal quarter of costal cell to apex of clavus, transverse line of cross-veins, tips of apical veins and an

arcuate band across distal three-quarters of apical cells but not attaining margin, base of clavus and a spot on commissural margin one-third from apex, pale or translucent testaceous. Abdomen with a short transverse pale bar medially in anterior half of sixth sternite, this bar not at all triangular.

Ovipositor with ventral lobes rhomboidal with distal angle in ventral view narrow, mesal margin convex in distal half; no accessory lobate expansions laterally at base;

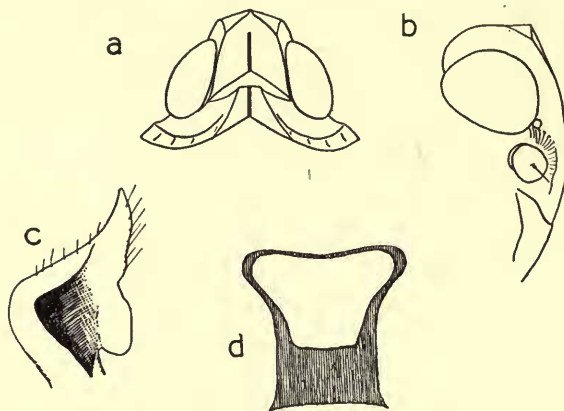


FIG. 101. *Catonia intricata* Uhler.

a, vertex and pronotum; *b*, head in profile; *c*, ventral lobe of first valvula of ovipositor; *d*, subvaginal plate.

disk auriculate, with a deep curved hollow suggestive of a perforation. Subvaginal plate 1:3 times as high as broad across base, lateral margins parallel in ventral portion, diverging markedly dorsad, transverse pigmented area occupying ventral third of plate.

Described from two females collected by the writer in mountain forest near Three Rivers, St. Vincent, B.W.I. (3 September 1941) resting on an aroid and *Cordia* sp. respectively. This species is readily distinguished from *sancti-vincenti* (below) by the more uniformly speckled and much darker mesonotum and by the absence of pallid bands on the legs; it differs markedly in size and in the female genitalia. Figures *a*, *b*, and *c* are of Uhler's female holotype.

Catonia sancti-vincenti sp. n.

(FIG. 102)

Male: length, 3.2 mm.; tegmen, 3.3 mm. Female: length, 4.0 mm.; tegmen, 4.1 mm.

Sc+R forking slightly more than two-fifths from base, Cu forking slightly distad of Sc+R fork, Curb simple, but cell Curb sometimes traversed by one or more veins at right angles to margin. Wing with cell R₁ with a distinct stalk before transverse vein.

Dull brown mottled creamy-testaceous; a median ochraceous line, or triangle, ventrally on sixth abdominal segment. Tegmina with a tinge of red at apex of costal cell, and on Sc+R, M, and Cu.

Anal segment of male in dorsal view subquadrate, anal foramen situated in distal half, apical margin deflexed, asymmetrical, with a lobe on right side. Phallobase with two expanding and flattened lobes dorsally, ventrally with a stout curved sclerotized bar on either side of middle line, each bifurcate in distal third. Aedeagal appendages unequal, the shorter abruptly narrowed into a spine at apex. Pygofer with medioventral process subquadrate, lateral margins slightly converging distally, apical

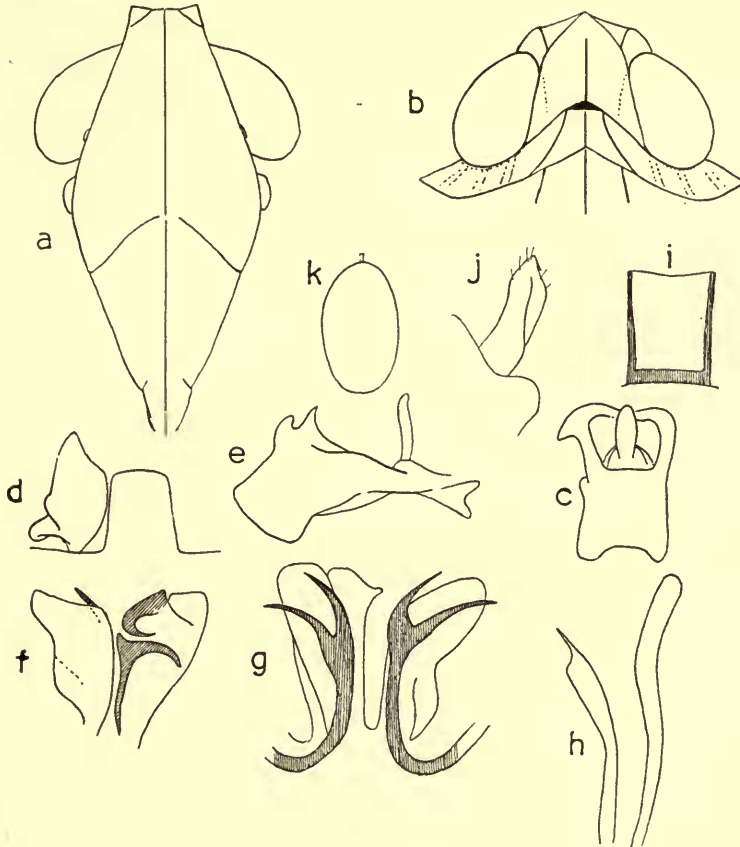


FIG. 102. *Catonia sancti-vincenti* sp. n.

a, frons and clypeus; b, vertex and pronotum; c, anal segment of male; d, medioventral process of pygofer and right genital style; e, right genital style, lateral view; f, phallobase, dorsal view; g, same, ventral view; h, phallic appendages; i, subvaginal plate; j, ventral lobe of first valvula; k, egg.

margin truncate-convex. Genital styles in side view expanding to near apex, ventral and apical margins meeting in a right angle; dorsal margin with a pair of pointed lobes on an eminence three-quarters from base; inner face near base with two small lobes and a long sinuate spine directed dorsally.

Female with subvaginal plate longer than broad (about 1.3:1) quadrate, narrowly sclerotized laterally and slightly more broadly on ventral margin. Ventral lobe of first valvula about three times as long as broad, with margins subparallel, apex acute, ventral surface with a straight crease.

Described from four males and three females collected by the writer at 600 feet in mountain forest, Three Rivers settlement, St. Vincent, B.W.I. (1-6 September 1941). Type in U.S. National Museum.

***Catonia sanctae-luciae* sp. n.**

(FIG. 103)

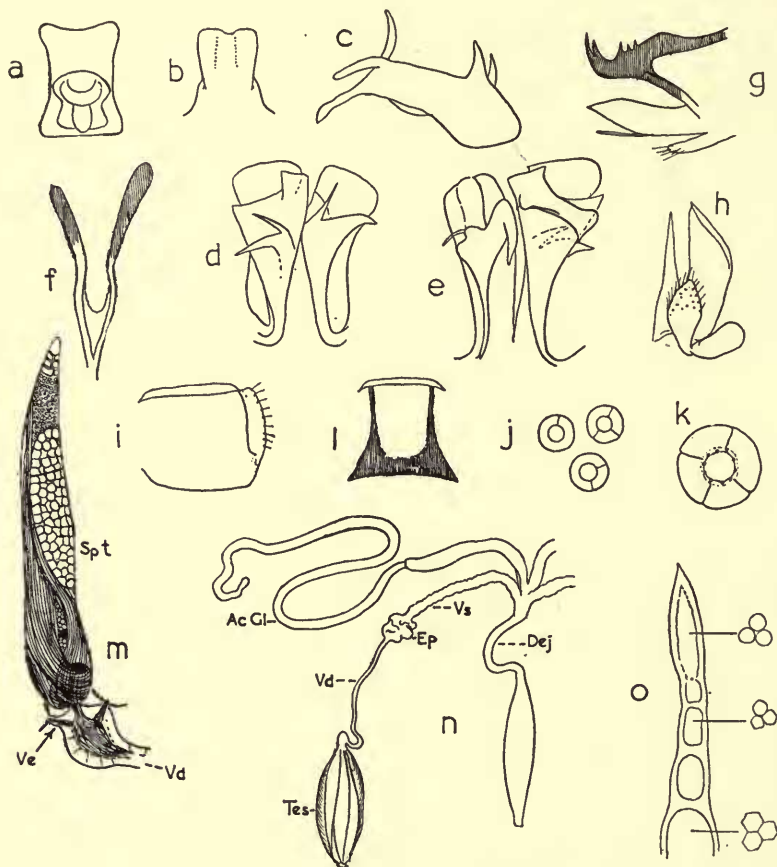


FIG. 103. *Catonia sanctae-luciae* sp. n.

a, anal segment of male; *b*, medioventral process of pygofer; *c*, right genital style; *d*, phallobase, ventral view; *e*, same dorsal view; *f*, phallic appendages; *g*, first valvula of ovipositor; *h*, female genitalia of right side; ventral view; *i*, third valvula; *j*, rings on surface of bursa; *k*, one of preceding, more highly magnified; *l*, subvaginal plate; *m*, spermatheca (*Spt*), vas efferens (*Ve*), and basal end of vas deferens (*Vd*); *n*, testis (*Tes*), vas deferens (*Vd*), epididymis (*Ep.*), vesicula seminalis (*Vs*), accessory gland (*AcGl*), and ductus ejaculatorius (*Dej*) (semidiagrammatic); *o*, apex of ovariole.

Male: length, 2.7 mm.; tegmen, 3.0 mm. Female: length 2.5 mm.; tegmen 3.5 mm.

Fuscous, speckled minutely with pallid spots; pale areas producing alternate bands of light and dark on sides of clypeus, legs, and costal cell of tegmina. Eyes red. Wings smoky.

Anal segment of male in dorsal view quadrate, apical margin shallowly excavate, smoothly deflexed through 90° . Pygofer ring-like, an incurved lobe on each side in dorsal view; medioventral process quadrate, 1.3 times as long as wide. Phallobase comprising a pair of broad horizontal lobes dorsally, that on right side with a sclerotized spine directed anteriorly, that on left with a small sclerotized knob; ventrally a pair of broad sclerotized unequal lobes, each bifurcated into two spinose processes. Aedeagal appendages strap-like, the shorter minutely pointed at apex. Genital styles narrow basally, distally subquadrate in profile, with a pair of pointed lobes on dorsal margin at apical third and a longer curved vertical spine arising on inner face near base.

Female with subvaginal plate subquadrate, about as long as broad across ventral margin. Ventral margin sclerotized, the sclerotic area extending inward for one-fifth of total length of plate; lateral margins concave, broadly sclerotized in lower half, narrowly sclerotized elsewhere. Ventral lobe of first valvulae elongate-rhomboidal, with an ovate lobe, as large as ventral lobe itself, attached on outer margin at its basal junction with body, surface of ventral lobe devoid of a crease. Bursa copulatrix ornamented with a close pattern of thick non-sclerotized rings.

Described from thirty-one males and twenty-nine females collected by the writer at Morne Lézard, Choiseul (14 May 1939), and in dry mountain forest on Morne Fortunée, Castries, St. Lucia, B.W.I. (September 1938, 18 August 1945, and on various dates between these). This species is distinguished in the male by the shape of the anal segment, the genital styles, and the phallobase and in the female by that of the subvaginal plate and of the ventral lobe of the first valvula and its attached lobe.

***Catonia mitrata* sp. n.**

(FIG. 104)

Male: length, 3.2 mm.; tegmen, 3.1 mm. Female: length, 3.4 mm.; tegmen, 3.7 mm.

Vertex as broad across base as long in middle line, lateral margins very strongly raised, median carina present in basal two-thirds: frons at widest part 2.5 times as broad as at base. Tegmina with Sc+R forked two-fifths from base, Curb simple, cell Curb not divided distad of transverse vein. Wings with cell R₁ with a distinct stalk before transverse vein.

Fuscous, uniformly speckled testaceous. Frons with lateral margins interrupted with about eight round testaceous spots; vertex with a Y-shaped pallid mark in middle line anteriorly with a short pale stripe on each side; a pale band across basal third of all tibiae and across middle of pro-femora. Tegmina pale fuscous, darker near stigma and in an oblique suffusion across middle of corium from basal quarter of costa to apex of anterior claval vein and thence to commissural margin, veins narrowly margined fuscous, interrupted with pallid spots.

Anal segment of male in dorsal view bilaterally symmetrical, lateral margins straight, parallel. Phallobase with two broad horizontal lobes dorsally, that of right side produced into a recurved pointed lobe at each apical angle, that of left into a single-pointed lobe directed obliquely laterad; ventrally a pair of T-shaped sclerotized

limbs, each end of the transverse arm tapering to a point; aedeagal appendages strap-like, unequal, the shorter not pointed at apex, the longer dilated into a knob distally. Genital styles in profile narrow in basal portion, subquadrate distally, with two short pointed lobes on an eminence on dorsal margin, a long curved spine arising on inner face near base; near this, on dorsal margin, a short finger-like lobe. Pygofer with medioventral process quadrate.

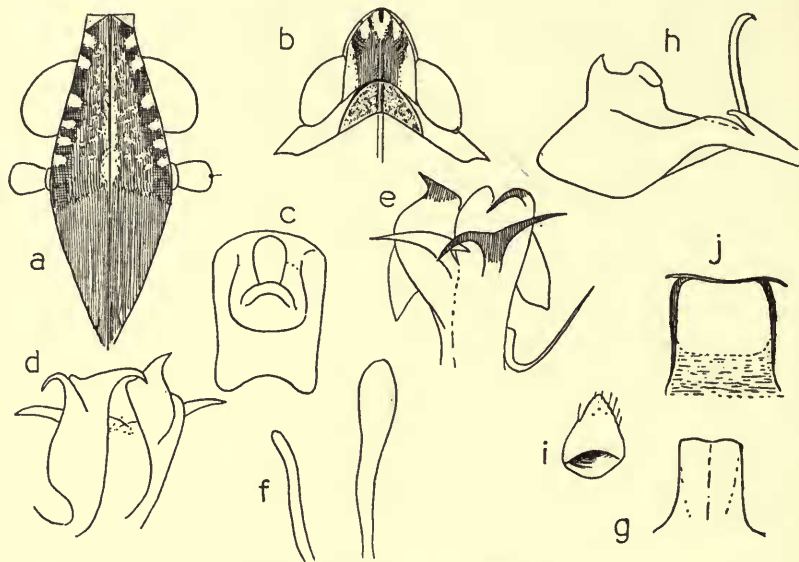


FIG. 104. *Catonia mitrata* sp. n.

a, frons and clypeus; *b*, vertex and pronotum; *c*, anal segment of male; *d*, phallobase, dorsal view; *e*, same, ventral view; *f*, apex of phallic appendages; *g*, medioventral process of pygofer; *h*, left genital style; *i*, ventral lobe of first valvula of ovipositor; *j*, subvaginal plate.

Subvaginal plate quadrate, as broad along ventral margin as long, ventral margin and a broad band extending inward for one-third of total length of plate only moderately sclerotized and pigmented, lateral margins narrowly but heavily sclerotized and pigmented, dorsal margin only slightly less so. Ventral lobe of first valvula subtriangular, outer margin longer than inner, basal margin convex; a wide transverse lenticular excavation in basal quarter.

Described from three males and ten females collected by the writer at 800 ft. in mountain forest, Saltoun, Dominica, B.W.I. (5-11 June 1940). This species is readily distinguished by the proportions of the vertex and frons, by the coloration, and by the details of the genitalia in both sexes.

Catonia antiguana sp. n.

(FIG. 105)

Male: length, 2.7 mm.; tegmen, 3.0 mm.

Vertex broader across base than long in middle (1.2:1). Tegmina with Sc+R forking two-thirds from base, R almost anastomosing with M at M fork, Cur forking

about middle of tegmen, ten apical areoles. Wings with cell R1 with a short stalk before R-M cross-vein, M2 branched, Cu_a branched, Cu_{1b} simple.

Testaceous-fuscous, coarsely mottled stramineous. Tegmina with anterior half of costal cell pallid, mottled with pale spots; veins pale, corium slightly infuscate, speckled pallid, membrane fuscous, distinctly darker inside apical margin, veins pallid, the apical series distinctly interrupted with fuscous at middle. Wings fuscous.

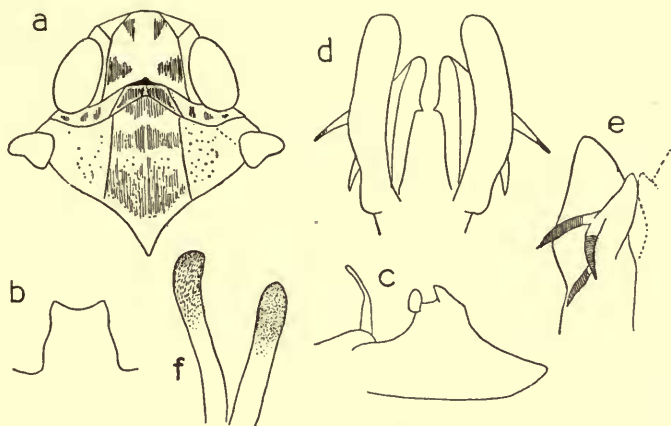


FIG. 105. *Catonia antiguana* sp. n.

a, vertex, pronotum and mesonotum; b, medioventral process of pygofer; c, left genital style; d, aedeagus, dorsal view; e, ventral view of apical portion of left half of aedeagus; f, phallic appendages at apex.

Anal segment in dorsal view broadest about one-quarter from base, margins converging distally to rounded apex. Pygofer with medioventral process subquad-rangular, distal margin slightly excavate. Genital styles with ventral margin convex proximally and distally, concave in middle, apical margin obliquely truncate, dorsal margin with a pair of subspinose processes set on an eminence two-thirds from base, a long angulate finger-like process on inner face near base directed dorso-medially. Phallobase with a subspatulate lobe on each side dorsally, directed posteriorly, with an oblique sclerotized plate on each side of middle line in ventral half: each plate with a minute tooth directed mesad on dorsal margin and three long sinuate spines on ventral margin, the basal and distal directed antero-laterad, the middle directed anteriorly.

Described from one male collected by the writer in coast scrubland at Yepton's, Antigua, B.W.I. (21 November 1945).

***Catonia major* sp. n.**

(FIG. 106)

Male: length, 3.7 mm.; tegmen, 3.8 mm. Female: length, 4.0 mm.; tegmen, 4.3 mm.

Sc+R forking two-fifths from base, Cu forking at about same level, Cu_{1b} branched at apex, cell R1 in wing with a short stalk before transverse vein.

Brown to fuscous-piceous; frons, genae, vertex, prothorax, and pleurites of thorax heavily speckled testaceous or ivory; mesonotum infusate on anterior margin, with a pale well-defined subquadrate area, broader than long, on disk; remainder of disk, except basal margin, fuscous to piceous; lateral fields of mesonotum marbled pallid fuscous. Tegmina fuscous to piceous; costal cell pallid, traversed by 7-10 oblique piceous bands, three of which are broad: cell Sc and R and anterior half of cell M and vein Cu for a short distance basad of fork, a narrow triangle broadest at node and attaining apex of clavus, apex of longitudinal veins and transverse veins of membrane, pallid; all longitudinal veins with pallid speckling on each side: membrane fuscous.

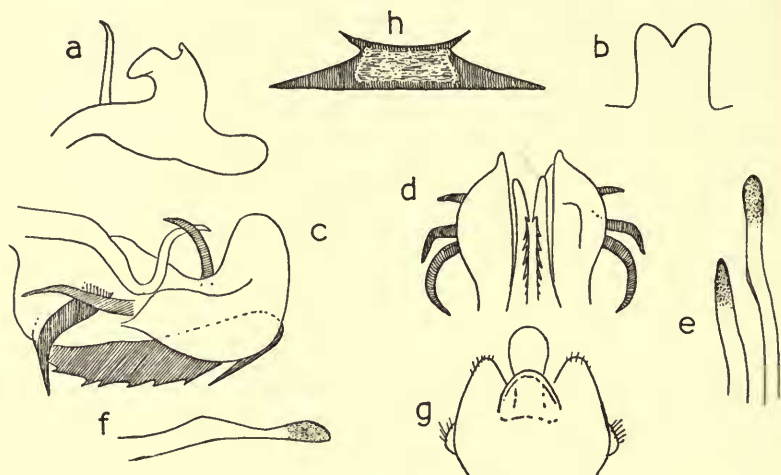


FIG. 106. *Catonia major* sp. n.

a, left genital style; b, medioventral process of pygofer; c, aedeagus, left side; d, same, ventral view; e, phallic appendages at apex; f, apex of one of phallic appendages in profile; g, anal segment of male; h, subvaginal plate.

Anal segment of male in dorsal view about as broad as long, excavate at apex, with a small lobe on each side one-third from base. Pygofer with medioventral process notched on apical margin. Phallobase in dorsal view with a pair of flat lobes, each with inner margin almost straight, outer margin convex, distally ending in a point; ventrolaterally, an oblique sclerotized plate on each side with six small recurved teeth and one recurved spine on dorsal margin, three long spines laterally, the basal spine sinuate, directed dorsad, the second directed laterad and bent cephalad in its apical third, the third arising near base and curving upward, then downward and mesad, crossing the middle line. Aedeagal appendages unequal. Genital styles with ventral margin sinuate, apical margin very oblique, dorsal eminence prominent, with two lobes; a long vertical spine arising on inner face of style near base, directed mesad.

Female with subvaginal plate longer on ventral than on dorsal margin (2:1), lateral margins oblique, strongly excavated near dorsal end. Lobe of first valvulae bluntly triangular, as broad across base as long, devoid of a lobate expansion at base.

Described from one male taken by the writer in Christian Valley, Antigua, B.W.I. (2 April 1944), and one female taken at Yepton's, Antigua, on *Malpighia* (10 December 1945).

Catonia digitalis sp. n.

(FIG. 107)

Female: length, 4.5 mm.; tegmen, 4.8 mm.

Median length of vertex slightly less than width across base.

Reddish-brown to fuscous, with head, thorax, and tegmina uniformly and evenly speckled with very minute pallid spots, legs not marked with pallid. Wings smoky brown.

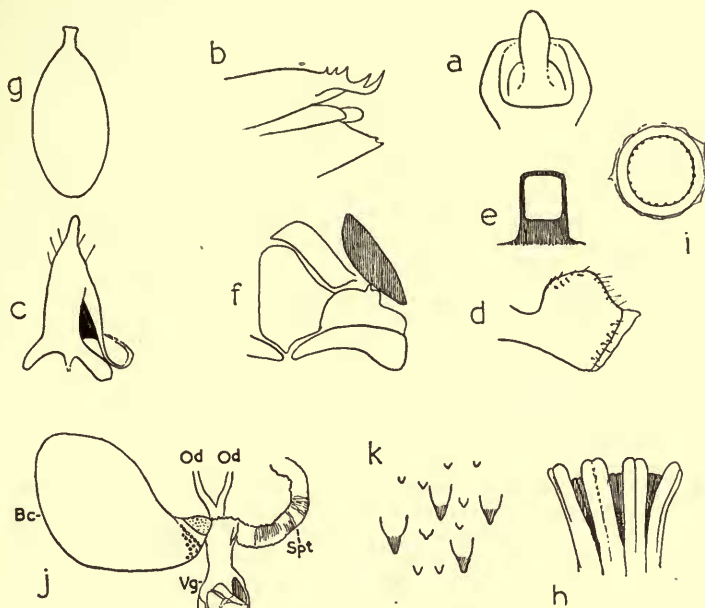


FIG. 107. *Catonia digitalis* sp. n.

a, anal segment of female; b, first valvula of ovipositor, left side; c, ventral lobe of first valvula; d, third valvula; e, subvaginal plate; f, dorsal view of sclerites in wall of vagina; g, egg; h, processes at micropilar pole of egg (artificially drawn apart); i, ring on surface of bursa copulatrix; j, vagina (Vg), spermatheca (Spt), bursa copulatrix (Bc), and lower portions of oviducts (Od); k, ornamentation on sclerite at entrance to bursa copulatrix.

Subvaginal plate quadrate, about 1.4 times as long as broad across ventral margin, ventral margin strongly sclerotized, the sclerotized area extending inward for about a third of length, lateral margins sclerotized, dorsal margin weakly sclerotized. Ventral lobe of first valvula elongate-triangular, produced at base into a finger-like lobe on inner margin and two spatulate lobes on outer face; a deep cleft between these lobes. Genital chamber with a sclerotized and pigmented ovate plate dorsally on right side. Bursa copulatrix with a subtriangular pigmented shagreen area at base, the minute spicules of this area conical, irregular, and of two sizes; remainder of bursa copulatrix ornamented with delicate sclerotized rings, each with a narrow rim and minutely tuberculate on inner circumference.

Described from two females collected by the writer at 1,000 ft. in mountain forest near Saltoun, Dominica, B.W.I. (June 1940). This species is very distinct, both on account of its size, sombre coloration, and ornamentation of the genitalia. In size,

in the presence of a deep cleft on the ventral lobe of the first valvulae, and in the deep sclerotized band along the ventral margin of the subvaginal plate this species would appear to be most nearly related to *Catonia intricata* Uhl. from St. Vincent.

***Catonia dominicana* sp. n.**

(FIG. 108)

Male: length, 3.5 mm.; tegmen, 3.8 mm.

Sc+R forking just basad of middle of tegmen, Cu forking more distad, Curb simple to apex; cell Curb not divided. Wings with cell R₁ with a very short stalk beyond transverse vein.

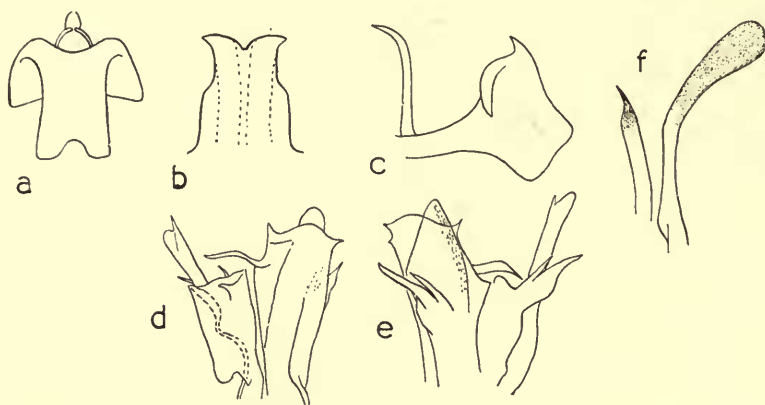


FIG. 108. *Catonia dominicana* sp. n.

a, anal segment of male; b, medioventral process of pygofer; c, left genital style; d, aedeagus, dorsal view; e, same, ventral view; f, phallic appendages at apex.

Pale fuscous, so heavily speckled with pale spots as to appear testaceous; clypeus wholly pale anteriorly; pro- and meso-tibiae with a broad pallid band across middle. Tegmina yellowish-brown, translucent, fuscous on membrane distad of stigma and in a subapical band interrupted by apical veins.

Anal segment of male bilaterally symmetrical, deflexed through 90° in distal half; lateral margins parallel in basal half; anal foramen situated in distal half, apical margin strongly convex. Pygofer with two unequal lobes on each lateral margin; medioventral process subquadrate with lateral margins concave distally, apical margin broadly notched. Phallobase with a pair of unequal horizontal lobes dorsally, that of left side longer and provided on inner face towards apex with a sinuate spine directed laterad across middle line, apical margin of lobe produced into a short tooth at each end; lobe of right side three-quarters of length of preceding, with a short curved tooth near inner apical angle, apical margin sinuate-truncate; ventrally a pair of sclerotized laminae each curved outward and forking in distal third, the limbs of each fork almost parallel, not diverging. Aedeagal appendages strap-like, the longer angulate one-third from base, the shorter pointed at apex. Genital styles in profile narrow basally, subquadrate in distal half, dorsal margin with a pair of spinose pro-

cesses on an eminence one-quarter from apex, the distal process stout, directed upward, the proximal process long, curved outward and downward, a long spine arising on inner face of style near base directed dorsally and curved mesally at tip.

Described from one male taken by the writer at 1,000 ft. in mountain forest near Saltoun, Dominica, B.W.I. (18 June 1939), on *Miconia* sp. This species is the Dominican counterpart of *C. sancti-vincenti*, from which it differs very markedly in the shape of the anal segment, lobes and processes of the phallobase, aedeagal appendages, distal processes and basal spine of genital styles, lateral margins and medioventral process of pygofer. The extent of these differences can best be appreciated from the figures.

***Catonia montserratensis* sp. n.**

(FIG. 109)

Female: length, 3.0 mm.; tegmen, 3.4 mm.

Vertex broader across base than long in middle (1.2:1). Tegmina with Sc+R forking at middle of tegmen, Cu forking very slightly distad of middle, Curb simple to apex. Wings with cell R₁ not stalked beyond transverse vein.

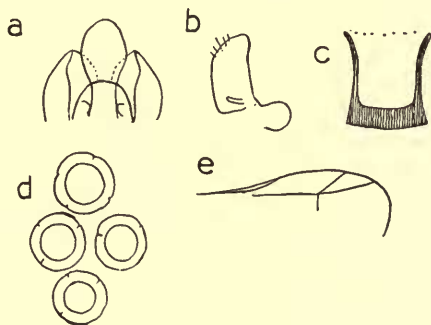


FIG. 109. *Catonia montserratensis* sp. n.

a, anal segment of female, dorsal view; b, ventral lobe of first valvula of ovipositor; c, subvaginal plate; d, ornamentation on surface of bursa copulatrix; e, apex of wing.

Fuscous, heavily speckled testaceous; pronotum laterally pale on interareolar ridges; mesonotum almost uniformly fuscous, speckled ivory-testaceous; tibiae pallid basally, near middle, and distally. Tegmina semitransparent, testaceous; seven rounded spots along costal margin, stigma and elongate suffusions or rounded spots interrupting all longitudinal veins, fuscous, speckled pallid; membrane with a faint arcuate suffusion just distad of transverse line and a fuscous band, interrupted by the apical veins, adjoining margin.

Anal segment of female in dorsal view with anal style spatulate. Subvaginal plate subquadrate, not quite as broad along ventral margin as long, ventral margin sclerotized, the sclerotized band extending upward for a fifth of total length of plate; lateral margins strongly but narrowly sclerotized, shallowly concave, dorsal margin not sclerotized. Ventral lobe of first valvulae short, inner and apical margin forming a single curve, outer margin straight, concave near apex, a prominent semicircular

lobe adjoining ventral lobe laterally at base. Bursa copulatrix ornamented with closely-set weakly-sclerotized rings.

Described from one female collected by the writer at 1,300 ft. on Chances Mountain, Montserrat, B.W.I. (12 May 1940), in forest. This species is distinguished by the position of the Sc+R fork in the tegmen, the stalkless condition of cell R₁ in the wing, by the shape of the anal style, subgenital plate, and ventral lobe of first valvulae. and by the coloration. The species is apparently endemic in Montserrat.

Catonia sobrina (Fowler)

(FIG. 110)

1904. *Helicoptera sobrina* Fowler, *Biol. cent.-Amer. Rhynch. Hom.* 1:106, pl. 11, fig. 14, a.

Frons and clypeus infusate; a transverse band across middle of frons, three spots above and three spots or short oblique bars below it on each lateral margin, a spot

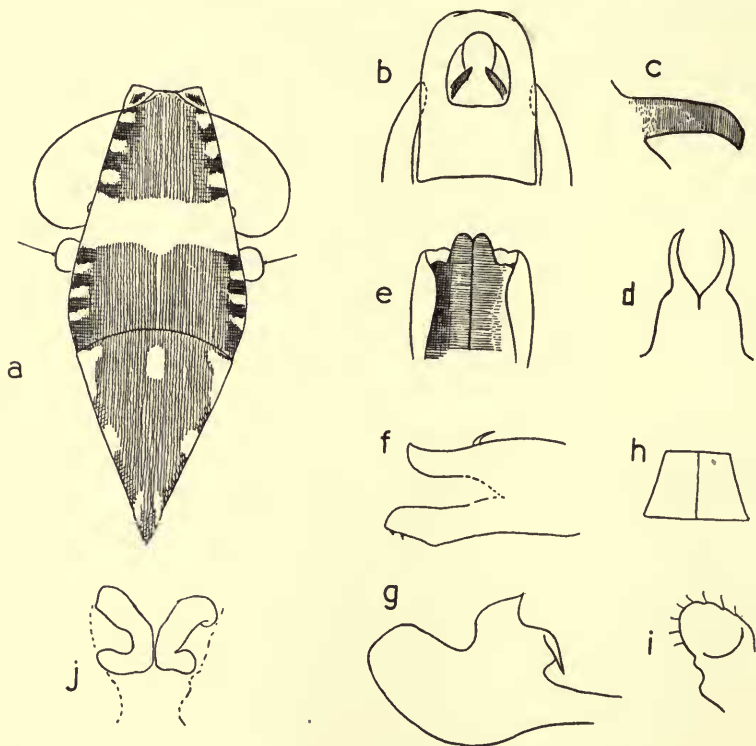


FIG. 110. *Catonia sobrina* (Fowler).

a, frons and clypeus; b, anal segment of male; c, process on hind margin of pygofer dorsolaterally; d, medioventral process of pygofer; e, aedeagus dorsal view; f, same in profile (semi-diagrammatic); g, right genital style; h, subvaginal plate; i, ventral lobe of first valvula of ovipositor; j, sclerites in vagina.

at base of median carina of clypeus and three spots on each margin pallid; areas between marginal spots of frons piceous-fusca.

Anal segment of male longer than broad (1.4:1), foramen in distal half. Pygofer

produced on each side into a moderately long process decurved at apex; medioventral process comparatively long, bifid in distal half with each limb curved. Genital styles narrow basally, in profile ventral margin convex, apical margin broadly rounded, dorsal margin excavate in apical half with a broad vertical plate directed dorsad, its upper angles pointed or spinose. Aedeagus in lateral and dorsal views as figured.

Subgenital plate of female trapezoidal, ventral margin less than twice height in middle, sides straight. Ventral lobes of first valvulae sinuate on inner margin, broadly rounded apically, outer margin oblique, a depression near middle of lobe bounded basally by an arcuate rim. Bursa copulatrix ornamented at its inner end with a large ovate sclerotized plate beset with short spines directed obliquely mesad, the spines in the vaginad third much longer than the remainder; general surface of bursa beset uniformly with minute rings; vagina not armed with sclerites.

This supplementary description is based on the type and closely corresponding paratypes. The various species in the British Museum standing under *Helicoptera sobrina* in the Biologia series may readily be separated by the colour-pattern of the frons and clypeus.

***Catonia albidovariegata* (Fowler)**

(FIG. III)

1904. *Helicoptera sobrina* var. *albidovariegata* Fowler, *Biol. cent.-Amer. Rhynch. Hom.* 1:107.

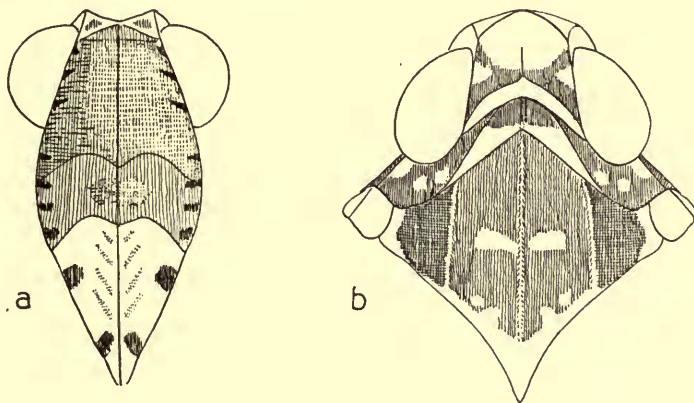


FIG. III. *Catonia albidovariegata* (Fowler).

a, frons and clypeus; b, vertex, pronotum, and mesonotum.

Female: length, 4.5 mm.; tegmen, 5.0 mm.

Fuscous; latero-apical areolet, distal half of vertex, a spot in middle of each lateral margin of vertex, a pair of triangular areas on posterior half of pronotal disk, two small round spots on pronotum behind eye and a larger spot on lateral marginal carina, tegulae, and mesonotum near tegulae and posterior margin of mesonotum, pallid; a spot on each side of median carina at middle of disk and a small spot behind it near scutellum testaceous; frons orange-fawn in basal two-thirds, a broad band, with basal margin correspondingly parallel to the sinuate fronto-clypeal suture, distinctly darker, a transverse ovate area in its middle paler, lateral margins with eight fuscous-

piceous spots, distally extending slightly mesad to form short bars; clypeus rather pale with two dark spots on each margin.

This supplementary description is based on one female collected by Champion at 5,000 ft., Panajachel, Guatemala, and one between 2,000 and 3,000 ft. on Volcán de Chiriquí, Panama.

***Catonia chiriquensis* (Fowler)**

(FIG. 112)

1904. *Helicoptera chiriquensis* (pars) Fowler, *Biol. cent.-Amer. Rhynch. Hom.* 1:107, pl. 11, fig. 16, a.

Male: length, 4.0 mm.; tegmen, 4.3 mm. Female: length, 4.2 mm.; tegmen, 4.9 mm.

Frons and clypeus pallid yellow or ochraceous; a small spot in each latero-apical facet on vertex, about nine small spots along each lateral margin of frons, a spot on fronto-clypeal suture at margin, margins of clypeus except near base and for a little distance mesad, fuscous-piceous.

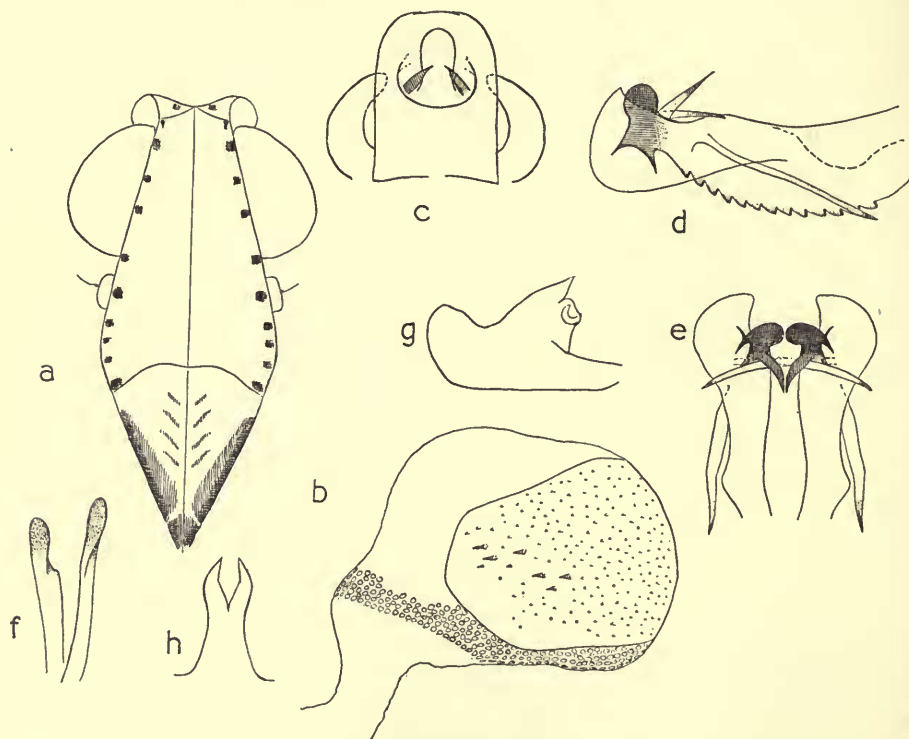


FIG. 112. *Catonia chiriquensis* (Fowler).

a, f frons and clypeus; b, bursa copulatrix; c, anal segment of male; d, aedeagus, lateral view; e, same, dorsal view; f, phallic appendages at apex; g, right genital style; h, medioventral process of pygofer.

Anal segment of male not twice as long as broad, rounded apically, anal foramen in distal half. Pygofer with each lateral margin produced into a moderately long lobe, tapering distally, rounded at apex, medioventral process about 1.5 times as long as

broad across base, bifid distally, each limb slightly incurved. Genital styles in profile narrow basally, ventral margin straight, apical margin rounded, dorsal margin concave, with a large subtriangular vertical process tapering to a point at apex with a second curved spinose process adjoining at a lower level. Phallobase bilaterally symmetrical, armed as shown in figures.

Bursa copulatrix furnished at inner end with a large round pigmented sclerotized plate bearing many minute spines irregularly scattered, four to six of these spines near the lower end distinctly larger than the remainder, conspicuous but scarcely more than twice as long as broad at base; general surface of bursa beset uniformly with minute rings. Vagina not furnished with sclerites.

Described from one male taken at 1,700 ft., Pantaleon, Guatemala, one female between 800 and 1,500 ft. at Bugaba, and a second female (the type) between 2,500 ft. and 4,000 ft. on Volcán de Chiriquí, Panama, collected by Champion. Type in Brit. Mus. (N.H.).

***Catonia sancti-geronimi* sp. n.**

(FIG. 113)

1904. *Helioptera sobrina* (pars) Fowler, *Biol. cent.-Amer. Rhynch. Hom.* 1:106.

Female: length, 3.9 mm.; tegmen, 4.2 mm.

Fuscous, spotted and marbled pallid; frons and clypeus fuscous, carinae of latero-apical aerolets of head, eight spots or short oblique bars on lateral margins of frons,

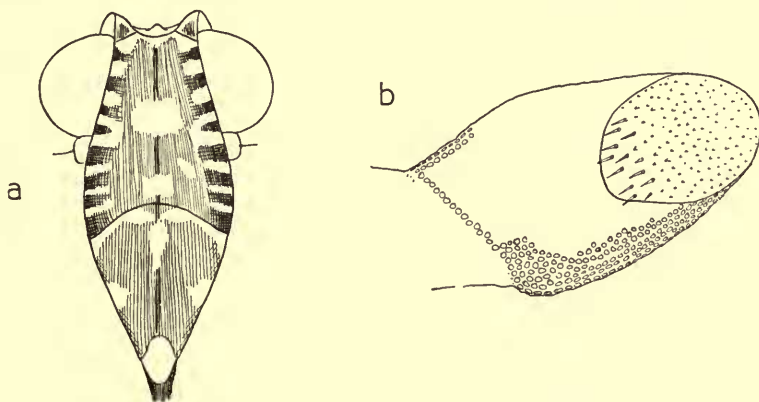


FIG. 113. *Catonia sancti-geronimi* sp. n.

a, frons and clypeus; b, bursa copulatrix (much of surface ornamentation omitted).

a large spot at middle and a smaller near apex of median carina of frons, one or two small spots on distal third of disk, most of clypeus adjoining fronto-clypeal suture, a spot on median carina of clypeus at base and near apex, and a spot in middle of lateral margins of clypeus, pallid; median carina of frons testaceous, apex of clypeus fuscous. Tegmina dull grey, alternated with fuscous along costal margin and on veins; a spot between Cu₂ and first claval vein at indentation of latter and a broad curved irregular band from stigmal cell to fork of Cu_{1a}, fuscous.

Bursa copulatrix ornamented at its inner end with a large ovate sclerotized plate beset with short spines directed obliquely mesad, about a dozen spines in the vaginad quarter much longer than remainder; general surface of bursa beset uniformly with minute rings; vagina not armed.

Described from one female taken by Champion at 3,000 ft., San Gerónimo, Guatemala. Type in Brit. Mus. (N.H.). The species is distinguished by the markings on the frons and by the form of the spines on the sclerite in the bursa copulatrix.

Catonia bugabae sp. n.

(FIG. 114)

1904. *Helicoptera sobrina* (pars) Fowler, *Biol. cent.-Amer. Rhynch. Hom.* 1:106.

Male: length, 4.0 mm.; tegmen, 4.2 mm.

Stramineous, marked testaceous-fuscous; vertex stramineous with two testaceous-brown spots on each side, frons testaceous, carinae of latero-apical areolets, three spots on basal third of each lateral margin of frons, a moderately broad shallowly

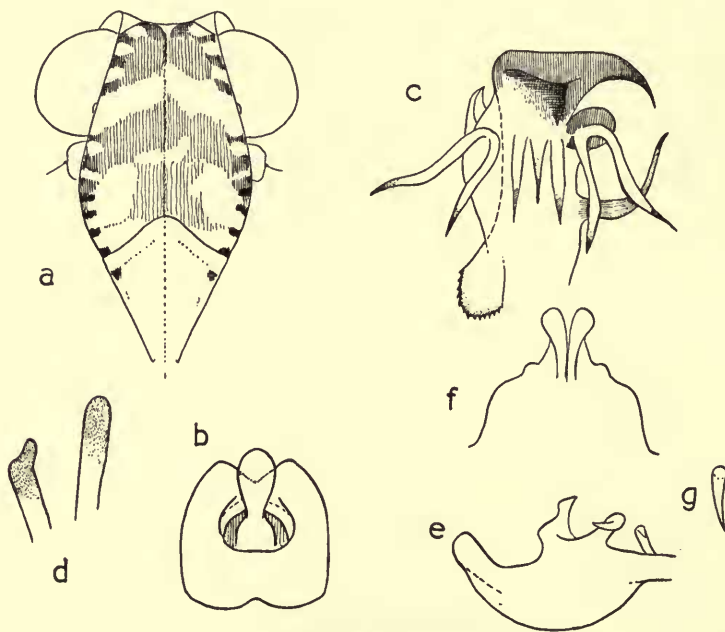


FIG. 114. *Catonia bugabae* sp. n.

a, frons and clypeus; b, anal segment of male; c, aedeagus; d, phallic appendages at apex; e, right genital style; f, medio-ventral process of pygofer; g, dorsal view of spinose process at base of genital style.

Λ-shaped band across frons near basal third, two spots on each margin and a short transverse bar across median carina distad, latero-apical fields of frons except for four spots on margin, pallid; pronotum testaceous. Tegmina testaceous-brown, infuscate between apex of clavus and stigma, and in an irregular band from basal margin of clavus between R and Cu to Cu₁rb at apex of clavus, costal cell pale. Wings smoky, veins concolorous.

Anal segment of male about as broad as long, apical margin rectangulately incised. Pygofer with medio-ventral process bifid in apical portion, each limb much longer than broad at apex, moderately broad and slightly curved laterad at apex, so that distal margin is oblique. Genital styles in profile narrow basally, ventral margin convex, apical margin rounded, dorsal margin concave with a pair of broad tapering processes near middle, one directed anterodorsad at apex, the other mesad, a curved spine on inner face of styles near base. Phallobase as shown in figures.

Described from one male labelled "*Helicopter sobrina* Fowl." taken by Champion between 800 and 1,500 ft. at Bugaba, Panama. This species bears a general resemblance to *Catonia pallidistigma* Fennah from Trinidad, B.W.I., but differs in the markings on the distal half of the frons.

***Catonia zunilana* sp. n.**

(FIG. 115)

1904. *Helicopter sobrina* (pars) Fowler, *Biol. cent.-Amer. Rhynch. Hom.* 1:106.

Male: length, 4.0 mm.; tegmen, 5.0 mm.

Colour as in *bugabae*, but markings generally paler in holotype.

Stramineous, mesonotum testaceous; two clouds on disk of frons testaceous; eight or nine spots on each lateral margin of frons, a spot in each latero-apical areolet of head, two on each lateral margin of vertex, and one in each depression of pronotum,

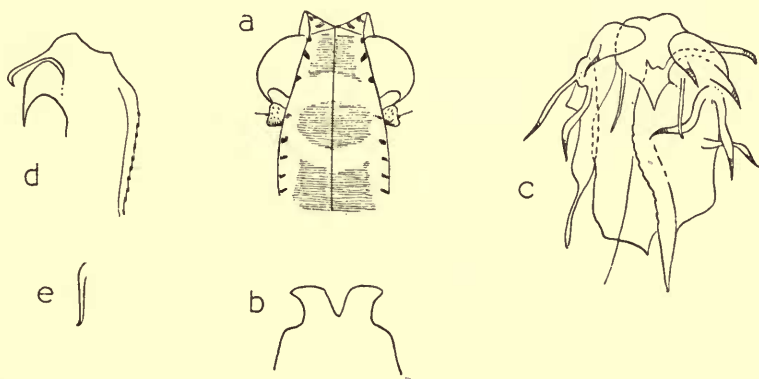


FIG. 115. *Catonia zunilana* sp. n.

a, frons; b, medio-ventral process of pygofer; c, aedeagus; d, ventral view of distal processes on left side of aedeagus; e, dorsal view of spinose process at base of genital style.

fuscous, usually small. Tegmina cinereous, an area at stigma, and apical areoles infuscate, veins cinereous interrupted by transverse fuscous bars.

Anal segment as in *bugabae*. Pygofer with medio-ventral process bifid in apical portion, each limb scarcely longer than broad at apex, apical margin of each transverse, or nearly so, exterior apical angle produced laterad. Genital styles generally as in *bugabae*, but spine on inner face near base (Fig. 115, e) much smaller and more slender than that in *bugabae*. Phallobase as shown in figures.

Described from one male collected by Champion between 4,000 and 5,000 ft., Cerro

Zunil, Guatemala. This species is close to *bugabae* but differs in the lighter markings, in the shape of the medio-ventral process of the pygofer, of the spine near the base of the genital styles, and in the proportions and shape of the spines and process on the phallobase. Type in Brit. Mus. (N.H.).

Catonia championi sp. n.

(FIG. 116)

1904. *Helicoptera sobrina* (pars) Fowler, *Biol. cent.-Amer. Rhynch. Hom.* 1:106.

Male: length, 3.2 mm.; tegmen, 3.8 mm. Female: length, 4.6 mm.; tegmen, 5.1 mm.

Testaceous, marked with fuscous; frons testaceous darkening to fuscous at lateral margins, seven small spots or short transverse bars on lateral margins, a rhomboidal spot at middle of median carina and a triangular spot at its apex, pallid; clypeus

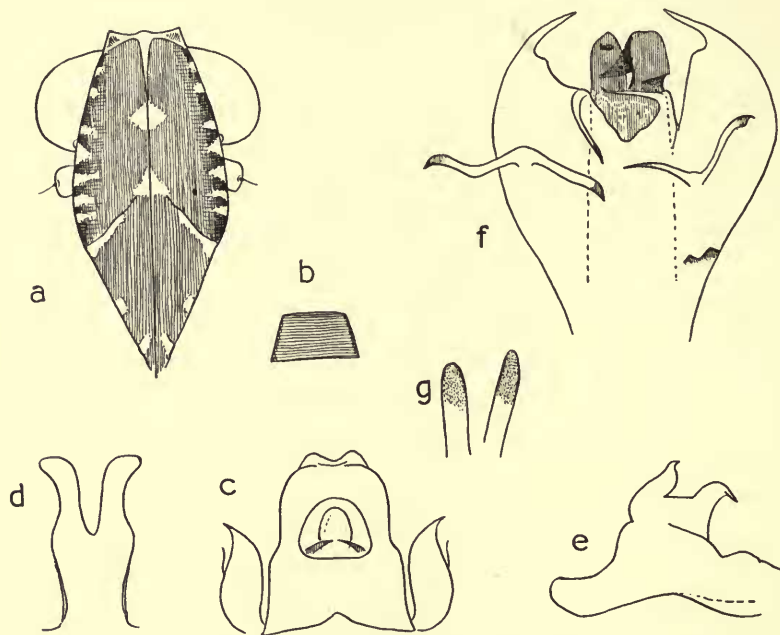


FIG. 116. *Catonia championi* sp. n.

a, frons and clypeus; b, subvaginal plate; c, anal segment of male and dorso-lateral lobes of pygofer; d, medio-ventral process of pygofer; e, right genital style; f, aedeagus, dorsal view; g, phallic appendages at apex.

testaceous, an oblique bar adjoining each laterad third of fronto-clypeal suture, two spots at margins in apical half pallid; pronotum fuscous-piceous, a pallid spot near each lateral carina of disk anteriorly and posteriorly.

Anal segment of male fully as long as broad, apical margin sinuate, concave at middle. Pygofer produced on each side in a short broad lobe tapering distally, medio-ventral process deeply bifid in distal half, each limb almost three times as long as broad at apex, apical margin truncate-convex, outer apical angle slightly produced laterad. Genital styles similar to those of *bugabae*. Phallobase as shown in figures.

Female with subvaginal plate trapezoidal, dorsal margin two-thirds length of ventral, lateral margins oblique.

Described from the following series collected by Champion: one male, 2,500–4,000 ft., Volcán de Chiriquí; five females, 8,000 ft., Volcán de Chiriquí, Panama; Cubilguitz, Vera Paz; San Joaquin, Vera Paz; San Juan, Vera Paz; San Gerónimo, Guatemala. Type in Brit. Mus. (N.H.). This species is distinguished by the markings on the frons, by the shape of the hind margin of the anal segment, and by that of the armature of the phallobase.

***Catonia muscosa* sp. n.**

(FIG. 117)

Male: length, 4.1 mm.; tegmen, 4.5 mm.

Brown to fuscous; two spots at anterior angles of vertex, two spots on median carina of frons, a series of spots along lateral margins, two spots on clypeus at fronto-clypeal suture, carina and parts of intercarinal spaces on pronotum, testaceous to pallid; mesonotum fulvous. Tegmina with corium light brown, veins of corium and their lateral granulation nile-green, membrane fuscous, veins pallid with pale granules. Wings smoky, veins concolorous or darker.

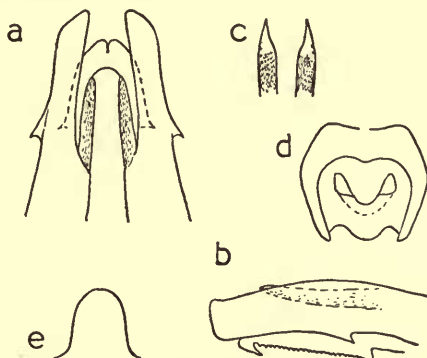


FIG. 117. *Catonia muscosa* sp. n.

a, aedeagus, dorsal view; b, same, lateral view; c, phallic appendages at apex;
d, anal segment; e, medio-ventral process of pygofer.

Anal segment very short, slightly broader than long, mostly occupied by anal foramen, apical margin bisinuate excavate. Pygofer with medio-ventral process entire, about 1.5 times as long as broad at base, apical margin strongly convex. Phallobase as shown in figures, with paired shagreen tapering dorsal sclerites, and paired serrated ventral sclerites decurved in a reflexed point at apex; aedeagal appendages both tapering at apex to a slender point.

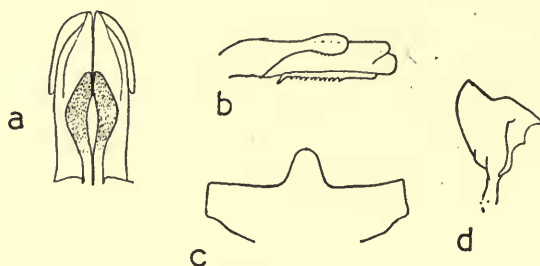
Described from one male collected by G. A. Hudson at Kutari Sources, British Guiana (Jan.–Feb. 1936; Brit. Mus. 1936–360). Type in Brit. Mus. (N.H.). This species is distinguished by the green veins on the brown corium and by the shape of the anal segment, medio-ventral process on the pygofer, and the armature of the phallobase.

Catonia moraballi sp. n.

(FIG. 118)

Male: length, 3.0 mm.; tegmen, 4.5 mm.

Testaceous and pallid green; vertex, except for two spots anteriorly and basal lateral angles, a suffusion on side of head above eyes, a series of about ten spots on each lateral margin of frons, distal half of clypeus, broad transverse bars on pro- and mesocoxae, femora and tibiae, and a narrow band near apex of post-tibiae, fuscous. Tegmina pallid yellowish-green, an oblique band across middle of clavus, another from middle of M to apex of clavus, a spot in cell R at level of M fork, distal portion of subapical cell Cu₁a and apical cells of Sc, R, and M fuscous. Veins of corium green all veins studded with pallid granules or short peg-like lateral outgrowths. Wings moderately infusate, veins darker.

FIG. 118. *Catonia moraballi* sp. n.

a, aedeagus, dorsal view; b, same, lateral view; c, posterior margin of pygofer; d, left genital style, ventral view.

Anal segment short. Pygofer with medio-ventral process entire, about as long as broad at base, apical margin strongly convex. Phallobase as shown in figures, dorsal shagreened sclerites expanding distally to assume a subspatulate form, paired serrated ventral sclerites not decurved distally in a spine.

Described from two males collected by the Oxford University Expedition at Moraballi Creek, Essequibo River, British Guiana (15-16 Sept. 1929; Brit. Mus. 1929-485; 18 Sept. 1929; Brit. Mus. 1929-485). Type and paratype in Brit. Mus. (N.H.). This species is evidently close to *muscosa*, but differs in coloration and in the shape of the armature of the phallobase.

Catonia (Pyren) saltator sp. n.

(FIG. 119)

Male: length, 3.4 mm.; tegmen, 4.0 mm. Female: length, 3.9 mm.; tegmen, 4.0 mm.

Vertex fully twice as broad as long in middle line; frons at widest part about 1.6 times width at base. Tegmina with nine apical areoles distad of stigma, apical areoles in M slightly longer than one-third of longest subapical areole in M.

Yellowish-brown with paler speckling; apex of clypeus, a spot on genae above eyes, a spot in each half of vertex, pronotum except carina, legs, and abdomen, fuscous,

mesonotum pale testaceous or fuscous, heavily speckled yellowish-brown and with a yellowish-brown area on each side of middle line anteriorly.

Anal segment of male in dorsal view broad, tapering distally, broadly rounded at apex. Pygofer with medio-ventral process quadrate, produced laterad at distal angles, apical margin transverse, medially cleft. Phallobase suspended by a pair of S-shaped sclerotized rods; dorsally hollowed out longitudinally, with a long triangular sclerite

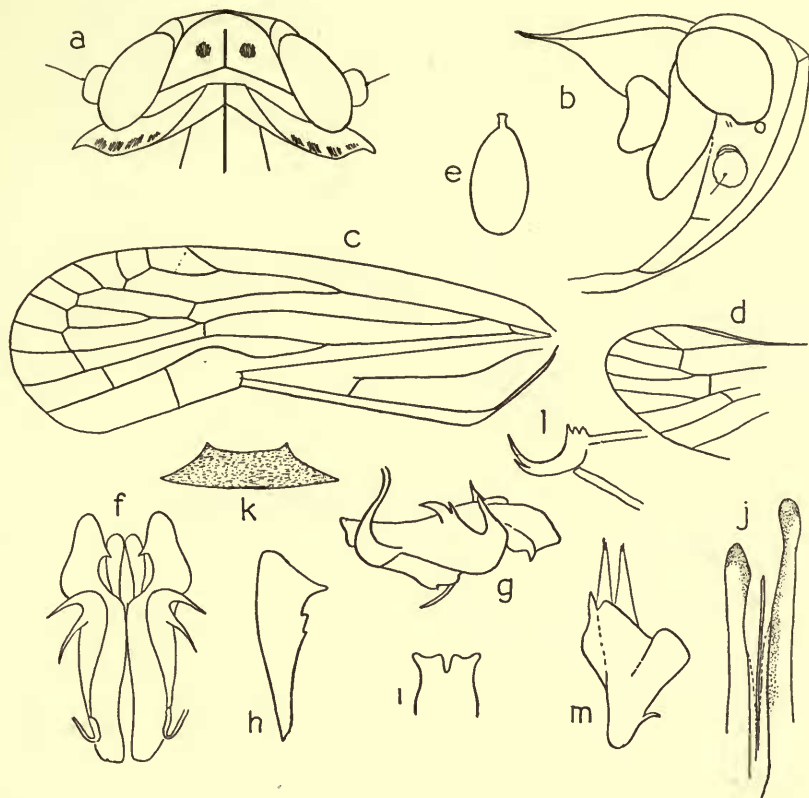


FIG. 119. *Catonia (Pyren) saltator* sp. n.

a, vertex and pronotum; b, head and thorax in profile; c, tegmen; d, apex of wing; e, egg; f, aedeagus, dorsal view; g, same, lateral view; h, one of dorsal sclerites of aedeagus, dorsal view; i, medio-ventral process of pygofer; j, phallic appendages; k, subvaginal plate; l, first valvula of ovipositor, lateral view; m, ventral lobe of first valvula.

on each side of middle line, each sclerite subtriangular in profile and bearing two minute teeth and a stout spine; phallobase ventro-laterally formed of a sclerite which is narrow basally and broadens distally to end in three spines; mesad of this sclerite a more delicate lobe, rounded distally, with a short spine directed ventrally. Aedeagal appendages strap-like, unequal, both rounded at apex, a long slender membranous filament extending caudad between them. Genital styles narrow basally, distally expanded with a pair of pointed lobes on dorsal margin near middle and a long curved subvertical spine arising on inner face near base.

Female with subvaginal plate fully three times as broad as long, ventral margin

about 1.8 times as long as dorsal, lateral margins oblique and concave. Ventral lobes of first valvulae of ovipositor triangular in ventral view, each furnished with a subspinose limb which is separate except at base; first valvulae with three small subequal teeth closely grouped on dorsal margin and a pair of longer but unequal spines distally. Bursa copulatrix uniformly beset with thin-walled rings, a subspatulate tract extending from near entrance for a third of circumference of bursa minutely shagreened.

Described from 9 males and 12 females taken by the writer at 800 ft. in mountain forest near Sherwood Estate, Dominica, B.W.I. (17 June 1940). This species is distinguished by the proportions of the head and the shape of the genitalia in the male and the ornamentation of the bursa copulatrix in the female.

ADDENDUM

ZATHAUMA Fennah

1949. *Zathauma* Fennah, *Ann. Mag. Nat. Hist.* (12) 2:605. Type-species, *Zathauma cristatum* Fennah.

Zathauma runs to *Phyphia* or *Spino* in the key to plectoderine genera, but differs from both in the markedly convex lateral discal pronotal carinae.

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